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HISTORY

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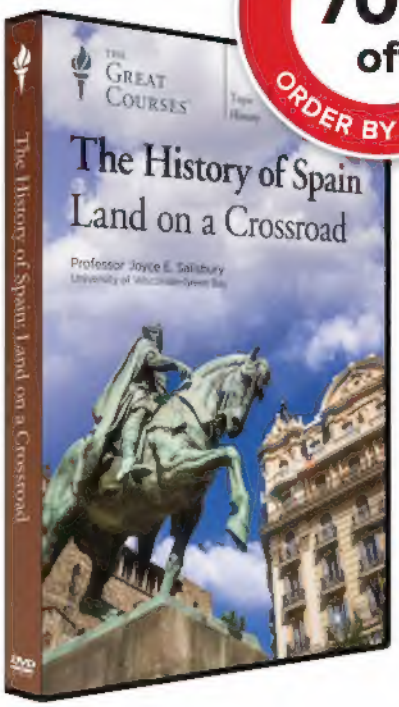
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The Congress of Vienna, a meeting of diplomats and rulers in late 1814, had one goal: to put Europe back together after Napoleon tore it apart. The four major players—Austria, Prussia, Russia, and the United Kingdom—bickered for months over how to achieve it. But then something happened in 1815 that smashed through the bureaucracy: Napoleon's return.

When word of Napoleon's escape from Elba reached Vienna, the delegates wasted no time. Before he reached Paris, Napoleon was declared an outlaw. Just 15 days later, the four major powers each pledged 150,000 men to fight "until Bonaparte shall have been rendered absolutely unable to create disturbance, and to renew his attempts for possessing himself of the Supreme Power in France." Their speed paid off: A few months later, they would defeat Napoleon at Waterloo.

Napoleon once said, "Men are moved by two levers only: fear and self interest." In this instance he was correct. Fear of his relentlessness and genius coupled with a desire to preserve the safety of their lands and people, creating a combination that gave Europe strong motivation to unite for quick action—something that Napoleon had fatally underestimated.

Amy Briggs

Amy Briggs, Executive Editor

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FLOOD TABLET OF THE *EPIC OF GILGAMESH*, SEVENTH CENTURY B.C. BRITISH MUSEUM, LONDON

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In 1628 William Harvey proved how blood circulates by using scientific experiments to overturn centuries of medical misunderstanding.

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Made of fish guts, *garum* was Rome's favorite condiment. Prized for its "perfume" and craved across the empire, garum paired with eggs, chicken, wine, and much else.

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In 1872 self-taught scholar George Smith discovered the *Epic of Gilgamesh*, one of the oldest works of literature, by cracking the code of cuneiform.

SIGNS OF THE TIMES PICTOGRAPHS ON THE MAIN ROCK ART PANEL OF SUNBURST SHELTER INCLUDE PECOS RIVER STYLE PAINTINGS DATING FROM 2700 B.C. TO A.D. 600.

ARCHAIC ROCK ART

Saving America's Oldest Chronicles

Paintings from 2700 B.C. to the A.D. 1500s adorn the canyonlands of Texas. A new project is preserving them in high-tech images, so if they ever disappear, their thrilling story can still be told.

They saw the Europeans arriving and drew them: men on horseback and figures in Spanish dress. Long before then—as early as 4,700 years ago—the hunter-gatherers of the Southwest had been painting scenes from their lives on the canyons where the Pecos River meets the Rio Grande. Filling the walls with pictures of people and animals, these ancient inhabitants of southwestern Texas inscribed the stories of early America.

Dammed and Saved

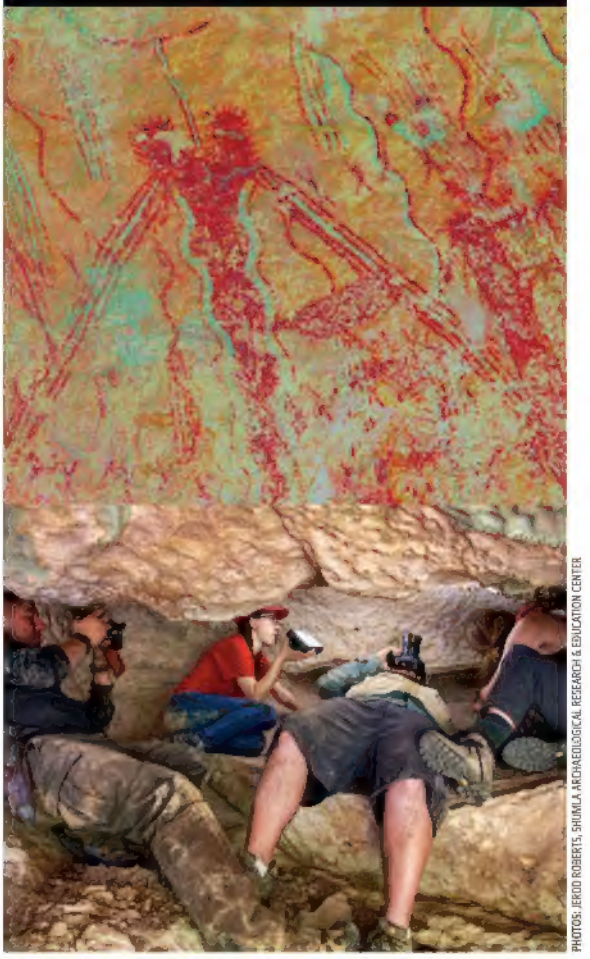
Since the 1930s, when documentation of these mysterious sites was first made, there have been huge strides in deciphering the vivid narratives within the murals. But this unique chronicle of thousands of years of human history, which holds the key to the worldview of ancient American societies, is increasingly under threat. Many sites were lost when the Rio Grande was dammed in 1969, and those that remain are under threat from further flooding.

But there is hope. Based in Comstock, at the heart of the lower Pecos region, the Shumla Archaeological Research & Education Center has hit on a way of preserving the murals for posterity.

Founded in 1998 by archaeologist Carolyn Boyd,

SHUMLA RESEARCHERS OBSERVE AND TAKE FIELD NOTES AT CRAB SHELTER, WITH THE DEVILS RIVER FLOWING BELOW.

A POLYCHROMATIC PAINTING at Crab Shelter, carbon-dated to 1200 B.C., is faded and blurry (above). Scholars used Decorrelation Stretch software to enhance it, revealing a much sharper image (below) of an elaborate anthropomorphic figure. To study these artworks, Shumla researchers often work in close quarters (bottom).



PHOTOS: JERODD ROBERTS, SHUMLA ARCHAEOLOGICAL RESEARCH & EDUCATION CENTER

Shumla has begun a three-year project to carry out a comprehensive documentation of rock art sites across Val Verde County.

Named for the Library of Alexandria in Egypt, an ancient repository of all the learning in the world, Shumla's Alexandria Project will use the latest in imaging technology to create a massive digital archive of America's oldest visual texts. Even if the artwork disappears, this library of images will preserve their glory, down to the very faintest brushstroke.

Far-Flung

The Alexandria Project is ambitious in scope. Shumla

JEROD ROBERTS, SHUMLA ARCHAEOLOGICAL RESEARCH & EDUCATION CENTER

CONNECTING THE DOTS

ARTIST, ARCHAEOLOGIST, and Shumla founder, Carolyn Boyd (right) first encountered the rock art of the lower Pecos in the late 1980s. She was particularly struck by a mural known as the White Shaman, a white figure surrounded by multicolored forms, which she is observing in the image. When a civilization disappears, the meaning behind its art is lost, and scholars must piece the meanings together. Some archaeologists theorize that the array of images are unrelated, but Boyd was convinced they all played a role in a unified story—if only she could crack the code. She started spotting patterns at other sites in the lower Pecos region, including antlered humanlike figures. Boyd later studied a modern painting of antlered figures and deer antlers decorated with mysterious dots, the work of an artist of the Huichol people of western Mexico. The Huichol associate deer with peyote, a hallucinogenic cactus that they believe can foster a bond between the living and the dead. Boyd knew that similar deer and dot motifs also appear in the ancient Pecos works. Once Boyd connected these with the elements at other sites, a complex narrative started to take shape: A creation myth, in which deer, peyote, and antlered humanlike figures, all play a powerful mystical role in the process of life, death, and rebirth.

founder Boyd—award-winning co-author of *The White Shaman Mural: An Enduring Creation Narrative in the Rock Art of the Lower Pecos*—has already dedicated years to in-depth examinations of key Pecos sites. Her database shows there are many more sites to document, scattered across 8,000 square miles of rugged canyonlands.

As part of a National Geographic Society–funded pilot, Shumla staff began the first phase of the Alexandria Project last year, to test research methods. "Let's just say it was fun, but incredibly tiring," said Shumla archaeologist Jerod Roberts, part of the team that studied 10 sites for the pilot.

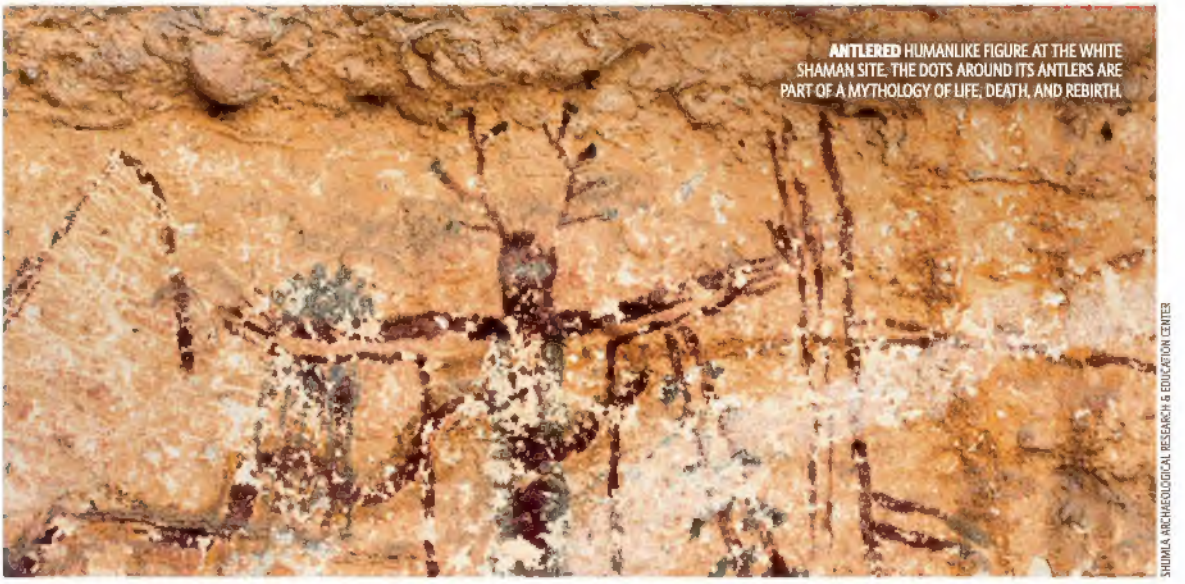
Scrambling onto hollowed ledges where much of the art nestles, the team collected data on mural sizes, the number of identified figures, techniques, and the condition of a site. The mural panels were imaged using a Gigapan system, which takes hundreds of overlapping photos from one viewpoint to create a single, highly detailed image for future study.

High Art

Inhabited for more than 10,000 years, the cavities in the canyons of the lower Pecos were formed when soft limestone, sandwiched between harder layers, was gradually eroded by natural forces.

STUDENTS OF SHUMLA'S ROCK ART FIELD SCHOOL GET FIRSTHAND KNOWLEDGE OF THE PREHISTORIC ART AT THE WHITE SHAMAN SITE.

AMANDA CASTANEDA, SHUMLA ARCHAEOLOGICAL RESEARCH & EDUCATION CENTER



ANTLERED HUMANLIKE FIGURE AT THE WHITE SHAMAN SITE. THE DOTS AROUND ITS ANTLERS ARE PART OF A MYTHOLOGY OF LIFE, DEATH, AND REBIRTH.

SHUMLA ARCHAEOLOGICAL RESEARCH & EDUCATION CENTER

These "rock shelters" were a boon for early societies seeking refuge from the elements. Some were also used for burial, and others for cooking. Around 2700 B.C., some of these lofty shelters started to serve as art galleries when their long, curved walls were covered with images.

These drawings may appear cryptic to modern eyes, but they were full of meaning for their creators. For many years, Boyd's research has centered on decoding the complex rituals they depict, a story closely tied to the plants and animals of the region.

This art may appear cryptic to modern eyes. But it was suffused with meaning for its creators.

Research has identified several stages in the development of the Pecos murals. The earliest forms are characterized by stick figures of humans and animals engaging in group activities. Later, the figures evolved into distinctive multicolored designs, known as Pecos River Style, which featured striking humanlike figures. Around A.D. 1000, abstract motifs—zigzags, herringbones, and lattices—began to appear, along with realistically portrayed animals.

As central to American heritage as the Lascaux or Altamira caves are to Europe, the age of the sites belies their vulnerability. "When we visit and document any given site, we treat it as if it may be lost tomorrow," explains Roberts. In the face of flood or other events, he says, the Alexandria Project "may be our only shot."

William Harvey's Bloody Revolution

In the 17th century this English doctor proved how blood circulates through the human body, tearing down the theories that had been popular in Europe for nearly 1,500 years.

Going Beyond Galen

Circa 216

Galen, Greek scholar and physician, dies. His studies of human anatomy will dominate European medicine for centuries.

1578

William Harvey is born in Folkestone, England. He will study medicine at the leading colleges and universities of Europe.

1618

Harvey becomes physician to **King James I** of England and will also serve his successor, **Charles I.**

1628

Harvey's **groundbreaking book** is published and contains new science about how the blood circulates.

1657

William Harvey dies of a stroke. At the time of his death, his description of blood circulation has become widely accepted.

Until 1628 few Europeans disputed the teachings of Galen, an accomplished Greek physician and scholar. Galen lived in the second century A.D., and his teachings would come to dominate European medicine and scholarship for centuries.

Galen's massive contributions to medicine cannot be denied. He was the first to identify the physiological difference between veins and arteries. He also disproved a 400-year-old theory that arteries conveyed not blood but air throughout the body (the name artery comes from this original idea: The Greek *arteria* means "that which conveys air"). By the 16th and 17th centuries scientific methods had evolved, making it easier for new scientists to challenge the old ones. Galen's theories were sitting ducks, waiting for a physician like Englishman William Harvey to take them down.

Galen's Anatomy

Galen taught that there are three main interconnected systems in the body: the brain and nerves; the heart and arteries; and the liver and veins. According to Galen, dark, venous blood formed in the liver and then traveled through the veins throughout the body to deliver nourishment and build and maintain tissues. Some blood would come into contact with air in the lungs and go to the heart. From there, this bright red blood went to the brain to form "pneuma," a substance responsible for sensation and feeling.

According to Galen's theory, the blood did not return to the liver or the heart. Instead, it would be consumed by the body, which meant that it needed to be constantly replenished. Sometimes the liver might produce too much blood, and the body became imbalanced, leading to illness. Galen's cure was bloodletting, as drawing off the excess fluid would restore equilibrium.

Other scientists had discovered the true nature of circulation centuries before Harvey. One of the main manuals of Chinese medicine, written 2,600 years ago, stated that "all of the blood in the body is pumped by the heart, completes a circle and never stops moving." In the 13th century the Arab doctor Ibn an-Nafis described so-called "small circulation" in which blood circulated only from the heart to the lungs and back without reaching other parts of the body.

EXERCITATIO
ANATOMICA DE
MOTV CORDIS ET SAN-
GVINIS IN ANIMALI
BVS,
GVILIELMI HARVEI ANGLI,
Francofurti,
Sumptibus GVILIELMI FITZERI.

Published in 1628, Harvey's small volume—about 70 pages long—became a gigantic milestone.

COVER OF *ON THE MOTION OF THE HEART AND BLOOD IN ANIMALS*, PUBLISHED IN 1628

AGE FOTOSTOCK

RUE DES ARCHIVES/ALBUM

SCIENCE TAKES ON SUPERSTITION

HARVEY'S FAME paved the way for becoming the royal physician from 1618. He treated James I during the king's serious illness in 1625 and would serve his son and heir, Charles I. It was at court that Harvey became involved in the witch hunts of the 17th century. The king appointed him as an expert witness in several trials, and Harvey's scientific approach saved the lives of at least four women accused of being witches. On one occasion, a toad was alleged to be a demon in disguise: To test the theory, Harvey dissected the toad with a scalpel and proved that it was just an ordinary (dead) amphibian.

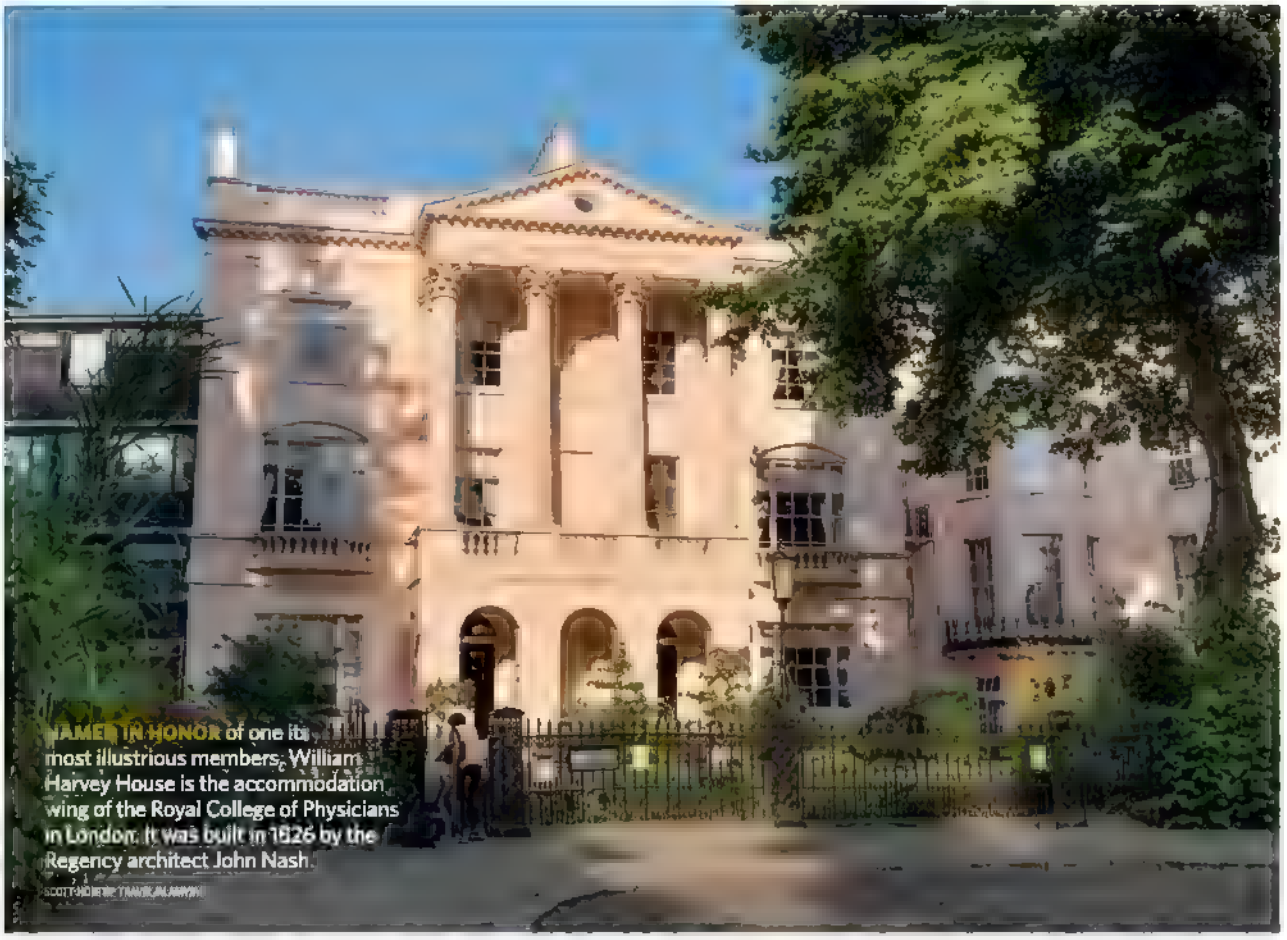
WILLIAM HARVEY CONDUCTS AN EXPERIMENT BEFORE KING CHARLES I OF ENGLAND TO DEMONSTRATE HIS THEORY OF BLOOD CIRCULATION.

In 16th-century Europe Galen's teachings were beginning to be challenged. The Spanish physician Michael Servetus argued that the venous blood was purified in the lungs before returning to the heart. Out of respect for, or fear of, the Galenic tradition, however, this philosopher and doctor did not describe the pathways through which the blood circulated. His contemporary the Belgian anatomist Andreas Vesalius demonstrated in the 1500s the flaws in Galen's anatomical description of the heart, but he did not challenge the rest of his teachings.

Harvey and the Heart

The growing skepticism of Galen's work had a great influence on William Harvey, who was born in Folkestone, England, in 1578. The son of a farmer, Harvey showed great promise as a child, and his father encouraged his studies. As a young man he studied at the King's School in Canterbury and at Cambridge University. He completed his medical education at the University of Padua in 1602. He returned to England and began practicing medicine and teaching. In 1607 he became a fellow of the Royal College of Physicians, and in 1609 he was appointed physician to St Bartholomew's Hospital in London. Harvey's star continued to rise: In 1618 he became the royal physician, serving both James I and his successor, Charles I.

Through his teachings and observations, Harvey began to develop a new theory to explain how blood flowed through the body. He applied rigorous standards to his research and only accepted conclusions as proven when they were based on evidence from repeated experiments. He collected data from phlebotomies (drawing blood from



NAMED IN HONOR of one its most illustrious members, William Harvey House is the accommodation wing of the Royal College of Physicians in London. It was built in 1826 by the Regency architect John Nash.

SCOTT HORTON/ALAMY

a vein) and palpitations of arterial aneurysms (abnormal dilation). He conducted thorough research, including numerous dissections of human beings and as many as 40 animal species. Harvey pored over the results before compiling them and publishing his groundbreaking *Exercitatio anatomica de motu cordis et sanguinis in animalibus (On the Motion of the Heart and Blood in Animals)* in 1628. Harvey's small volume—about 70 pages long—became a gigantic milestone.

In this book (first published in Latin, and then in English 25 years later) Harvey laid out the evidence supporting his case that blood moved throughout the body in a circle. His strongest evidence was that it would be impossible for the body to replenish the amount of blood it would consume under Galen's theories. He arrived at this conclusion by calculating the total volume of blood that moves through the body in an hour and showed that it was too high for the body to replenish. Therefore, the amount of blood in the human body must be constant and in perpetual motion.

Harvey's observation of beating animal hearts showed him how the heart, not the liver, functions as the engine for the circulatory system: "It must therefore be concluded that the blood in the animal body moves around in a circle continuously and that the action . . . of the heart is to accomplish this by pumping." The action of the heart moved blood out through the arteries to the body and then back to the heart through the veins.

IN COLD BLOOD

AS THE ROYAL DOCTOR during the English Civil War, Harvey was entrusted with protecting the young children of King Charles I at the Battle of Edgehill in 1642. Following the battle, he noted that a royalist left for dead in the frost had revived because the intense cold had slowed his blood loss.

WILLIAM HARVEY IN AN UNDATED PORTRAIT

COLPORT/ALAMY/ALI

Valves in the Veins

WILLIAM HARVEY wanted to demonstrate how blood moved through the body in a circuit, flowing out through the arteries and returning through the veins. Inside the veins, Harvey observed valves that kept the flow moving in one direction: "The valves are solely made and instituted lest the blood should pass from the greater into the lesser veins . . . The delicate valves, while they readily open in the right direction, entirely prevent all contrary motion." Harvey's simple experiment (right) shows the valves in action

◀ **GALEN'S VIEW** OF THE CIRCULATORY SYSTEM IN *DE ARTE PHISICALI ET DE CIRURGIA* (1412) BY JOHN ARDERNE

▶ **HARVEY'S** VALVE EXPERIMENTS ILLUSTRATED IN A 1766 EDITION OF THE *OPERA OMNIA*, A COLLECTION OF HIS WORKS

Fig. 1.

Harvey applied a tourniquet to the arm of a volunteer, who gripped an object in his hand. He then waited for the blood vessels to swell due to the buildup of liquid flowing through them. The small globular protuberances (B, C, D, E) indicate the presence of venous valves

Fig 2.

He then applied pressure with his finger to stop the blood, keeping it from flowing past point H. The vein between points O and H did not fill with blood, which demonstrated that there the valve at point O was acting like a dam and preventing the blood from flowing backward toward the hand

LEFT: BRIDGEMAN AE; RIGHT: PLAINT AGE POTOSTOCK

Aftereffects

Because Harvey's work challenged the accepted ideas of the time, it was greeted with a mix of interest, skepticism, and hostility. In England many were intrigued by his writing and persuaded by his science. King Charles I saw the academic value of his work, but some conservative doctors leveled accusations of quackery at him, causing his private practice to suffer. In Europe his discoveries were not embraced, and detractors included leading writers of the period. While Molière and Boileau supported Harvey's views, Descartes—who initially accepted blood circulation—rejected the idea that the heart pumped the blood. Despite initial resistance, Harvey's theory of circulation was widely accepted by the time of his death in 1657 at age 79.

Paradoxically, the growing acceptance of Harvey's work on circulation was not adopted by practicing physicians right away. Traditional remedies (such as enemas and purgatives) were based on Galen's idea of human physiology, but doctors still applied them to patients. Bloodletting, in particular, remained a popular treatment for illness; even Harvey supported its use. A half century after Harvey's death, the French king Louis XIV was still accepting traditional treatments. Throughout his life, the king was treated with 2,000 purgatives, hundreds of enemas, and 38 bloodlettings.

Professionally, Harvey remained in service to the royal family and was sent on several diplomatic missions to Europe. He largely retired from public life in 1645, but he did continue his medical research into the human body with a focus on reproduction. While his work on circulation is certainly his greatest achievement, he also produced the pioneering work *Exercitationes de generatione animalium*, or *On Animal Generation*, on embryology in 1651. The last years of his life were spent in poor health, as he suffered from gout, kidney stones, and insomnia before dying from a stroke.

In life Harvey had been unable to prove the connection between veins and arteries, but four years after his death, another scientist would build on Harvey's legacy. Marcello Malpighi (1628–1694) revealed the passages that connected the venal and arterial systems. Using a microscope, he discovered minuscule vessels, the capillaries, the missing piece of the puzzle.

—Bernat Hernández

Learn more

William Harvey: A Life in Circulation
Thomas Wright, Oxford University Press, 2012

Garum, Rome's Funky Fish Sauce

Made from fish guts, *garum* was the condiment of choice across the Roman world. A network of factories and trade routes sprang up to feed Rome's insatiable appetite for this singularly smelly relish.

What would be on the menu for a banquet at the home of a rich Roman at the end of the first century A.D.? A dozen guests reclining on couches would wait for slaves to carry laden dishes to the table. What would they serve? To start, there might be pork with garum, followed by fish with garum, and to wash it down: wine with . . . yes, garum!

So what was this essential sauce that enhanced so many Roman dishes? Today's closest equivalent to garum is probably fish sauce, a liquid mix of fermented fish and salt, which is now a staple in many Southeast Asian cuisines. Like modern fish sauce, Roman garum was also made from fermented fish—the guts specifically—and salt. It was used in recipes to enhance flavor. Romans cooked with it either as a straight flavoring or by combining it with other ingredients, such as pepper *(garum piperatum)*, vinegar *(oxygarum)*, wine *(oenogarum)*, oil *(oleagarum)*, or even drinking water *(hydrogarum)*.

This condiment became so essential to the ancient Roman palate that a huge network of trade routes grew up to move the prized relish from fishery to plate. Like many delicacies today, the finest garum could sell for astronomical sums.

As well as gracing dinner plates in the empire, garum was also used medicinally. Its high protein content was thought to stimulate the appetites of recovering patients and to have curative properties for a range of maladies. In his *Natural History*, Pliny the Elder extols garum as a cure for dysentery and an effective treatment for dog bites. Pliny also recommended it for earaches, and believed that consuming African snails marinated in garum would ward off stomach troubles.

MEDITERRANEAN seafood on a first-century Pompeii mosaic. Different varieties of fish were the key ingredient for *garum*, Rome's favorite seasoning. National Archaeological Museum, Naples

SCALA, FLORENCE

FOGLIA/SCALA, FLORENCE

RANCID RICHES

A SAUCE SALESMAN and freed slave, Aulus Umbricius Scaurus constructed his dream house in first-century Pompeii thanks to the fortune he made from *garum*. Believed to have been the main supplier of the prized sauce to the wealthy city, his atrium was decorated with a mosaic floor incorporating images of garum amphorae, including this one (left).

Fish Factories

Garum's origins lie in both Greek and Phoenician cooking. Amphorae containing deposits of the sauce have been found in shipwrecks from the fifth century B.C., and it is believed that its name may derive from the Greek word for shrimp.

It was the Romans, however, who really got a taste for the stuff. By the imperial

period it was part of a thriving, pan-European economy. Factories known as *cetariae* proliferated to satisfy the Roman world's craving for the fish sauce. Typically, these production centers were located near the coast, ensuring quick and easy access to the freshest catch. They also tended to be outside the city center because of the stench radiating from them.

Each factory had a central patio, rooms for cleaning fish, and places to store the prized liquid when it was made. The most characteristic elements of these factories were the vats in which the fish sauce was

The Joy of Cooking . . . With *Garum*

MARCUS GAVIUS APICIUS, a wealthy Roman epicure, lived in the first century A.D. and is associated with one of the oldest cookbooks in ancient history. Most likely compiled in the fourth century, *De re coquinaria (On the Subject of Cooking)* contains many recipes that list *garum* and other fish sauces as essential ingredients, like in this recipe for Parthian chicken:

Dress the chicken carefully and quarter it. Crush pepper, lovage [a green herb], and a little caraway suffused with liquamen [a fish sauce similar to garum] and add wine. Place the chicken in an earthen dish and pour the seasoning over it. Add laser [a fennel-like plant] and wine. Let it assimilate with the seasoning and braise the chicken. Sprinkle with pepper.

Among the book's simplest recipes is a dish of fried eggs seasoned with a mixture of wine and garum!

GARUM FACTORY IN THE SECOND-CENTURY CITY OF BAELO CLAUDIA IN SOUTHERN SPAIN

Something Fishy

Numerous *garum* factories sprang up along the coasts of North Africa and Spain, such as the one at Baelo Claudia (above), near modern-day Tarifa. The Roman-era garum factory at Cotta in Morocco (right) was another production center where fish were harvested, turned into garum, and shipped out for sale.

1 PREPARING
In the long hall workers clean the daily catch, saving the fish innards for *garum* production.

2 FERMENTING
Located in the center of the factory are several rectangular vats where the mix of fish guts and salt will be left for several months to ferment in the sun.

3 BOTTLING
Following fermentation, the mixture is strained to obtain the garum sauce, which is decanted into amphorae of a variety of sizes, especially made for the product.

4 STORING
Ready for shipping, the amphorae are piled up in large warehouses close to the beach.

5 SHIPPING
The amphorae are loaded onto ships to be transported and traded across the whole Mediterranean basin.

produced. These were normally made of cement set into the floor, but occasionally they have been found excavated out of rock. The vats' interiors were coated with *opus signinum*, a highly resistant sealant to ensure the precious glop did not seep away.

Two types of products were made in the cetariae: salt fish and garum. There was a very practical reason for carrying out both processes together: Garum conveniently used up the otherwise disagreeable by-products—fish innards—of the salting process.

To make garum, vats were filled with fresh fish guts typically cleaned from whitebait, anchovies, mackerel, tuna, and others. They were placed between layers of salt and aromatic herbs and left in the sun for several months until they reached proper pungency. It was important to add just the right amount of salt—too little would result in putrefaction, while too much would disrupt the natural process of fermentation that gave the sauce its distinctive tang.

When the fermentation stage was finished, the malodorous mixture was strained. The resulting thick, amber liquid was the prized sauce garum, while the paste left behind was called *allec*. An inferior product to garum, allec was also widely traded.

FISH ON A TABLE. FIRST-CENTURY B.C.E. EF. MUSEUM OF ROMAN CIVILIZATION, ROME
DEA/AGE FOTOSTOCK

> Pliny the Elder likened the smell of luxury *garum* to that of the finest of perfumes.

Garum Gourmets

Not unlike different types of wine or cheeses today, garum came in all sorts of different grades and prices, depending on the type of fish used to make it and on the concentration of the liquid. The weaker product was usually destined for more modest kitchens, but in the later Roman Empire, factories in Armorica (modern-day Brittany in France) produced cheap garum to supply the huge demand from the army.

WATERCOLOR: JEAN-CLAUDE GOLVIN, MUSÉE DÉPARTEMENTAL ARLES ANTIQUE © EDITIONS ERRANCE

The rich, meanwhile, scouted for high-end garum. Pliny the Elder extols one particular gourmet variety known as *garum sociorum*, which was produced on the outskirts of Carthago Nova (modern-day Cartagena in southern Spain). Praising this mackerel-based product to the heavens, Pliny put its fragrance on a par with the finest unguents or perfumes.

Delicacy Delivery

Regardless of where it came from or its quality, all garum was stored in amphorae for transportation. There were many types of garum amphorae, but they were always kept separate from those used for transporting oil or wine. On some, inscriptions known as *tituli picti* have been preserved. These "labels" are a kind of marking painted on the outside of the amphora to indicate what kind of foodstuff was on the inside

Although garum was produced in many different places across the Roman world, the Iberian Peninsula was especially rich in salting factories. Many used mackerel and even tuna as their main ingredient. A whiff of the Roman Cartagena fisheries lives on in the name of the modern town in the area—Escombreras, derived from *scombris*, the Latin word for "mackerels."

Baelo Claudia was a key garum production center, lying conveniently near the Strait of Gibraltar, where the Mediterranean Sea joins the Atlantic Ocean. These waters form the migratory route for several fish species. Here, nets could be set to catch tuna as they passed through on their way to spawn, a practice that continues on that coast to this day.

The majority of factories on the Iberian Peninsula were dotted along the Andalusian coast up to Portugal and the mouth of the Tagus River. Remnants of garum amphorae from these towns have been found all over the Roman Empire. By tracking amphorae finds, researchers can trace an extensive network, by land and sea, that once brought garum to its imperial consumers.

Italy was, of course, richly supplied, and many garum amphorae have been found at the Monte Testaccio in Rome, a spoil heap more than 100 feet high consisting entirely of discarded, broken food vessels. Garum was also carried over land routes through western Europe, eventually reaching the remote hills of northern England as far as Hadrian's Wall. There, on the chilly northern boundaries of the civilized world, soldiers and citizens could nevertheless enjoy the salty tang of the fish sauce fermented in the Mediterranean sun.

—María José Noain Maura

CROC OF AGES

The Egyptian tradition of embalming animals lasted until the Roman period, as attested by this magnificent crocodile from the first century A.D. The tiny mummified dog's head (below right) was either a pet, or an offering to the god Anubis, often depicted as a dog.

S. VANNINI/GETTY IMAGES. **BELOW:** SPL/AGE FOTOSTOCK.

Egypt's Eternal Animals

MUMMY MENAGERIE

In ancient Egypt mummification wasn't just for people: Cats, dogs, birds, cows, and even crocodiles were also wrapped in linen for the afterlife, a complex practice that has yielded revealing insights into Egyptian culture.

SALIMA IKRAM

PRINCE'S PET
The regal cat depicted on this coffin (above) was the pet of the eldest son of Amenhotep III. Its mummified remains were placed inside in the 14th century B.C. Egyptian Museum, Cairo
BRIDGEMAN/ACI

Although human mummies have fascinated people for centuries, it is only relatively recently that mummified animals have begun to catch the attention of the public. There is certainly no lack of specimens: Millions of artificially preserved bodies of animals survive from antiquity. Found in museum collections all over the world, they include a broad range of creatures, ranging from beetles to bulls. Animal mummies typically fall into four major categories: pets, victual (or food) animals, animals worshipped as gods, and animals intended as divine offerings.

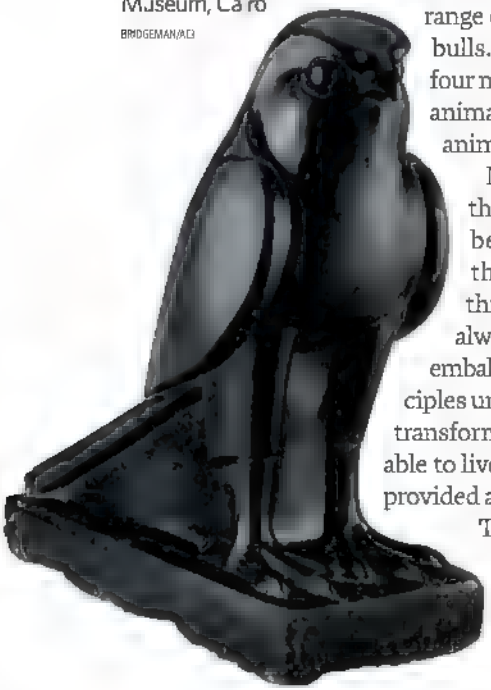
Mummification of people—including the bodies of pharaohs—in Egypt had become an established custom by the time of the Old Kingdom in the third millennium B.C. Technology was always evolving and often varied among embalming houses, but the same basic principles underpinned the practice. The process transformed the recipient into a divine being, able to live for eternity, whose preserved body provided a physical refuge for the soul.

The process for mummifying animals was similar to the one for humans. In its most standard form, embalmers would eviscerate the body, wash it, dry it, and cover it with natron (a naturally occurring mixture of several sodium compounds) to desiccate it. In the case of animals, drying out the body could take 15 to 50 days, depending on the size of the creature.

Next, it would be cleaned and anointed with sacred oils and resins to inhibit bacteria growth. At the end of this lengthy process, the body would be wrapped in linen bandages and then either placed in a coffin or buried. Different techniques were developed over time, depending on an animal's size and whether it had fur, feathers, or scales. Birds, for example, were sometimes eviscerated and then immersed in a mixture of resin and oil, and some creatures, such as crocodiles, were not eviscerated at all.

Beloved Companions

Recent finds have revealed yet more proof of just how much ancient Egyptians loved their pets. In 2017 archaeologists working at Berenice, on the far south of modern Egypt's Red Sea coast, found a burial ground entirely given over to cats, dogs, monkeys, and other domestic animals. Some of the buried animals at the site, which was in use in the first century A.D., were found with iron collars around their necks.



HORUS, GOD OF THE SKY, IN THE FORM OF A FALCON. PTOLEMAIC PERIOD (323 B.C.–A.D. 30). ART INSTITUTE OF CHICAGO
SCALA, FLORENCE

NEW
This
buried
in Abydos. Along
symbolized Thoth, god of
88

DOGS ON A LEASH, RELIEF ON THE MASTABA OF MERERUKA IN SAQQARA, THIRD MILLENNIUM B.C.

BRIDGEMAN/ALI

A graveyard exclusively reserved for cherished domestic animals—whose remains were unmummified—appears to have been a late development in Egypt's long history of death rites for pets. For centuries before, pet dogs, cats, monkeys, and gazelles had been mummified and often entombed in their own coffins.

Sometimes, such pets were buried with their owners, a practice recorded throughout ancient Egyptian history. A man called Hapi-men, for example, who lived around 300 B.C., was found in his coffin with his pet dog embalmed at his feet. Going back much further, a couple buried at Saqqara in the 14th century B.C. shared their tomb with many companion animals including dogs, cats, baboons, and vervet monkeys.

Pharaohs typically had their pets buried close to them. A baboon and a hunting dog were discovered in what is now known as Tomb 50 in the Valley of the Kings. They were probably royal pets, belonging either to the 18th-dynasty pharaoh Amenhotep II, who died around 1400 B.C., or to the last king of that dynasty, Horemheb. One of the most famous, and touching, examples of an owner's love for their pet is the case of Queen Isetemkheb D, from the 10th century B.C. On or around her death, her pet gazelle, was embalmed and placed in her tomb in a gazelle-shaped casket.

Soul Food

Victual, or food, mummies reveal a more pragmatic side. This type of mummy emphasizes the belief that, in fact, one *could* take everything

PETS FOR LIFE— AND THE AFTERLIFE

PETS were prized across ancient Egyptian society, and those belonging to royalty were especially venerated. A beautifully preserved **royal hunting dog (right)** was discovered in 1906 in a tomb of the Valley of the Kings. The animal, whose wrappings had fallen away, was found facing a baboon in a kind of standoff—perhaps a joke set up by grave robbers centuries ago. Another well-preserved royal pet is the **gazelle (below)** that belonged to Queen Isetemkheb D in the 10th century B.C. Discovered at Deir el Bahri in 1881, it lay in a sycamore casket, wrapped in strips of linen and adorned with necklaces. Both mummies are on display at the Egyptian Museum, Cairo.

RICHARD BARNES

BOWL FROM THEBES, EGYPT, CONTAINING REMAINS OF DRIED FISH AND LINEN STRIPS. SECOND MILLENNIUM B.C. BRITISH MUSEUM, LONDON
SCALA, FLORENCE

with them, and that the afterlife is very similar to an ideal earthly existence, which meant that the deceased would need food.

Poultry and meat were preserved to be human sustenance in the afterlife. Ducks, geese, and pigeons were common (chickens were not until about the second or third century B.C.). Beef ribs and shoulders, legs of veal, and even liver have been found as provisions for the mummies.

This form of offering was most common in elite burials in the New Kingdom period (1539-1075 B.C.), although un-mummified food offerings have been discovered from earlier. By the New Kingdom poultry was being plucked, joints of meat skinned and prepared for consumption, each desiccated and anointed with resins and oils, then wrapped—presumably without the same prayers that were used for pets and other animal mummies—before being placed in caskets often mimicking the shape of the food. King Tutankhamun, who died when he was a teenager in the 14th century B.C., had over 40 victual mummies in his tomb, some in egg-shaped containers—clearly, he would not go hungry!

Gods on Earth

In addition to companionship and sustenance, another type of animal mummy performed an important spiritual function. The Egyptians believed that a particular god could send his or her "essence" into the body of an animal. Priests often identified the "chosen ones" by their distinctive markings or coloration. During its lifetime, this animal would be worshipped and

DUCK DINNERS IN THE AF

WHEN HOWARD CARTER tomb in the Valley of the K found not only [illegible] king's magnificent grave goods but also "a pile of [illegible] wooden cases, containing trussed ducks and a [illegible] of other food offerings." These distinctive [illegible] containers, stashed with sustenance for the young king's sojourn into the afterlife, can be seen carefully stacked beneath one of the pharaoh's funeral beds in the photo. The image in this photo was taken by the Carter expedition photographer, Harry Burton, and digitally colorized by Dynamichrome on behalf of the Griffith Institute at the University of Oxford, in 2015.

GRIFFITH INSTITUTE, UNIVERSITY OF OXFORD

STELA FROM THE SERAPEUM OF SAQQARA (13TH CENTURY B.C.) DEPICTING WORSHIP OF AN APIS BULL. LOUVRE MUSEUM, PARIS
DEA/ALBUM

treated as if it were a god. After its death, it was mummified and buried with great pomp, and the spirit of the god would transfer to a new animal.

The oldest such cult was that of the Apis bull, who was sacred to the creator god Ptah of Memphis and was buried at the Serapeum at Saqqara; other bull deities are known from Heliopolis near Memphis and Armant near Luxor. Rams sacred to Khnum, god of potency, creation, and inundation, were buried at Elephantine, while the site of Bubastis housed a cat dedicated to the goddess Bastet.

Many such animals lived to an unusually old age due to the care that they received. The Khnum rams, for example, lived well beyond the average age of normal rams, dying when they were over 20 years old, often hand-fed with mash when their teeth had worn down entirely. Unfortunately, given that so many of these catacombs have been looted since ancient times, only a few sacred-animal mummies have been found.

Divine Offerings

The fourth animal mummy type, on the other hand, abounds. It can be found in museums all over the world: This is the votive offering, a mummified animal sacrificed to the gods. Each deity had a specific animal that was its symbol: Cats, as mentioned above, were sacred to the goddess Bastet, goddess of pleasure, love, and beauty, all of which are attributes of a cat; ibises were consecrated to the god Thoth, god of writing and learning, partly because their beaks took the shape of a pen.

SACRED COWS

ONE OF THE MOST IMPORTANT SACRED ANIMALS in Egypt was the Apis bull, worshipped at Memphis. The incarnation of the god Ptah, a god of the underworld, the Apis bull lived in stables near the deity's temple in Memphis, where it received every comfort. After death, people began a lengthy mourning period sometimes lasting as long as 70 days. The animal's body was carefully embalmed, a process described in detail in the Apis Papyrus, written in the second or first century B.C. The viscera were usually not extracted but instead removed by injecting solvents through the anus. After completion, the mummy was carried to a special catacomb at nearby Saqqara reserved for all Apis bulls, known as the Serapeum, constructed in the 13th century B.C. Here, it was buried near its predecessors in a granite sarcophagus.

BULL'S EYE
A technician (above) examines an Apis bull by x-ray. Thanks to careful preparation of the body centuries ago, its wrappings and false eyes are still in good condition.

SMITHSONIAN INSTITUTION

ENTOMBED
All Apis bulls were buried in colossal sarcophagi such as the one shown to the left, located in the Serapeum of Saqqara near the ancient Egyptian city of Memphis.

KYODO NEWS/GETTY IMAGES

ANIMAL SARCOPHAGUS IN THE FIGURE WITH A CROCODILE BODY AND A FALCON HEAD FROM THE PTOLEMAIC PERIOD. LOUVRE MUSEUM, PARIS
RMN-GRAND PALAIS

These mummified animals were purchased from the priests and offered by pilgrims at shrines dedicated to the respective gods. The mummified animals would, it was believed, present the prayers of the pilgrim to the god throughout eternity, equivalent to votive candles that are burned in churches today. Once offered, the mummies would remain in the temple precincts until an annual or biannual celebration, possibly attended by thousands of pilgrims, when they would be interred in tombs associated with the temple.

To meet demand, animals were probably bred for the purpose. The creation of these mummies represented a substantial part of the temple economy. The overhead costs were considerable: The animals had to be acquired, housed, fed, and then sacrificed and mummified with materials traded from different parts of Egypt as well as from abroad. Their sale to pilgrims, however, would have raised significant funds for the temple.

A vast range of creatures were offered: cats, dogs, crocodiles, gazelles, fish of different types—including catfish and Nile perch—baboons, raptors, ibises, baboons, shrews, and scarab beetles. By 200 B.C. catacombs could be found all over Egypt filled with millions of mummified offerings to the gods.

The largest of these found so far is a colossal mass grave at Saqqara, discovered in 1897. An excavation in 2009, followed by a second in 2012, uncovered astonishing findings: Built around 2,500 years ago, the catacomb holds the

THE ANIMAL CATACOMBS OF HERMOPOLIS

LOCATED near the modern settlement of Tunah al Jabal in central Egypt, the city of Hermopolis was sacred from early in Egyptian history to Thoth, god of writing and learning, later associated with the Greek god Hermes. Among its many monuments are the remarkable catacombs along its northern boundary, containing huge quantities of votive mummies of ibises and baboons sacrificed and embalmed in honor of Thoth. Most of these offerings were made in the Greco-Roman period, but at least one item—a baboon sarcophagus—is dated to the time of the Persian king Darius I, who ruled Egypt in the fifth and sixth century B.C. The rock-cut chambers in the foreground of this image were for baboon mummies. Farther down, ibis mummies were placed.

RICHARD BARNES

SCANNING A CROCODILE MUMMY AT THE DUTCH NATIONAL MUSEUM OF ANTIQUITIES, LEIDEN, IN 2015

MIKE BINK/NATIONAL MUSEUM OF ANTIQUITIES, LEIDEN

THE INSIDE STORY

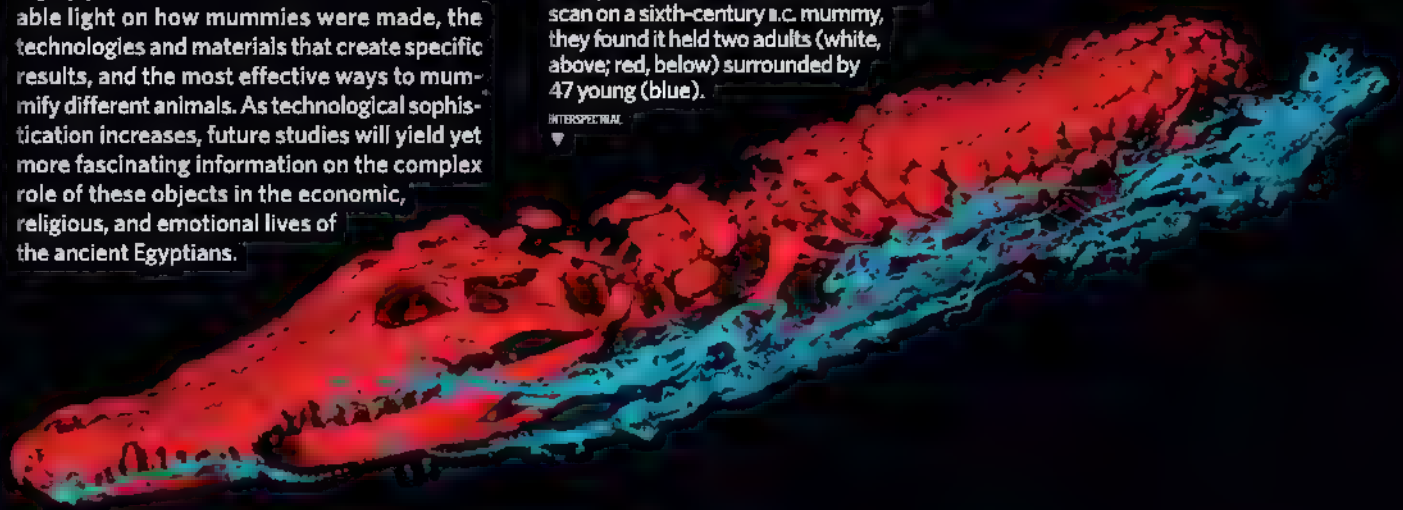
THE INVESTIGATION of Egypt's animal mummies has entered a new age as changes in technology allow researchers to examine intact mummies without unwrapping them, so sparing them damage. Radiography—x-rays and CT scans—can provide clear initial images. Imaging technology can even make 3-D prints of the skeleton within the wrappings. Scholars are also using chemical analysis of embalming agents to identify the materials used in mummification. These chemical "signatures" can reveal more about where and how mummies were made. DNA analysis is increasingly used to understand the genetic development of the different species that were preserved, providing insight into how these creatures have evolved over time. Another new technique is experimental mummification, in which researchers actually make mummies for themselves. This highly practical form of research sheds valuable light on how mummies were made, the technologies and materials that create specific results, and the most effective ways to mummify different animals. As technological sophistication increases, future studies will yield yet more fascinating information on the complex role of these objects in the economic, religious, and emotional lives of the ancient Egyptians.

BIRD BONES ▶
3-D image of the interior of a kestrel mummy from the Ptolemaic period. South African Mummy Project

SOUTH AFRICAN MUMMY PROJECT AND VISION GRAPHICS

▲
COUNT THE CROCS
When the National Museum of Antiquities of the Netherlands ran a 3-D scan on a sixth-century B.C. mummy, they found it held two adults (white, above; red, below) surrounded by 47 young (blue).

INTERSPECTRAL
▼



CAT SCAN ▶
The University of Manchester is undertaking a major project to study more than 800 votive-animal mummies from 57 museums around the world. The feline-shaped casket containing a cat mummy is from the Ptolemaic period. Manchester Museum, England

MANCHESTER MUSEUM, THE UNIVERSITY OF MANCHESTER

remains of eight million creatures. Located near the Temple of Anubis—the dog-like deity of death and the afterlife—the corpses are mainly those of dogs and puppies.

Among votive offerings found in other parts of Egypt are "false" mummies. Although wrapped to resemble a specific animal, they might enclose the bones of a different species, remnants of one or several animals, or even feathers. Were the pilgrims being swindled by the priests? A more charitable theory is that the Egyptians believed that a part could signify the whole, and that if one said or wrote that something was a particular item, then it magically became so through the supporting prayers.

Although sacred-animal cults, such as that of the Apis bull, are known from around 3000 B.C., the practice of votive mummies started much later in Egyptian history, around 600 B.C. Although weakened by Christianity, the practice possibly survived as late as the fourth century A.D. The enduring popularity of animal offerings might partly be due to national sentiment: In later history, foreign invaders overran Egypt, and the animal cults allowed Egyptians to define themselves, religiously and culturally.

Unwrapping Egypt

In addition to what they reveal of ancient beliefs and cultural practices, animal mummies also provide scholars with a great deal of information about different aspects of ancient Egypt's society and economy. Victual mummies not only reveal cultural insights, such as what foods were highly valued, but also yield practical clues as to how animals were butchered. The study of the different species used sheds light on the climate and environment of those times and how it has changed since.

Signs of disease in, or trauma to, animal bones, and their treatment, reveal much about veterinary methods. Mummification technology informs us about the ancient Egyptians' knowledge of chemistry, and the materials used to make millions of mummies provide an insight into the trade networks and economy of this millennial culture.

SALIMA IKRAM IS DISTINGUISHED PROFESSOR OF EGYPTOLOGY AT THE AMERICAN UNIVERSITY IN CAIRO AND A FOUNDER OF THE ANIMAL MUMMY PROJECT AT CAIRO'S EGYPTIAN MUSEUM.

BABOON
Along with ibises, baboons were associated with the god Thoth. This seated mummy (period unknown) was found in the Tuna al-Jabal burial complex in central Egypt and is now in the British Museum, London.

RAM
Mummified rams—this one is either from the Ptolemaic or Roman era—are associated with the gods Khnum and Amun. Louvre Museum, Paris

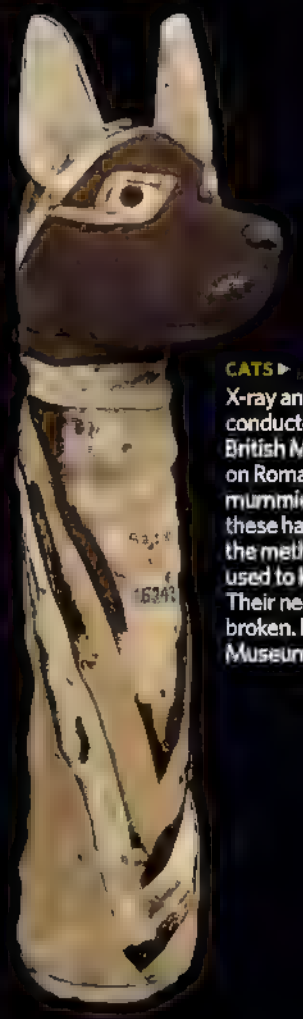
GIFTS FOR THE GODS

DURING EGYPT'S LATER PERIOD—from the beginning of the Ptolemaic period in the fourth century B.C. to the Roman occupation in A.D. 30—the mummy-production industry flourished. Pilgrims offered them to the gods in places of worship all over the country. One such center was the cult of the cat goddess, Bastet, in Bubastis in Lower Egypt, where a vast number of votive cat mummies were produced to meet demand. As European interest in Egypt boomed in the 19th century, children sold them to tourists. Today, these mummies are carefully conserved by museums for their cultural, historical, and scientific value. Examples of votive mummies are shown on this page.

PHOTOS: BRITISH MUSEUM/SCALA, FLORENCE. BASE: DEA/AGE FOTOSTOCK

JACKAL ▼
Many jackal mummies have been found at Abydos, such as this example from the Roman era. The jackal is associated with Anubis, one of the gods of the underworld. British Museum

CROCODILE ▲
Associated with the fertility god Sobek, crocodile mummies—such as this one from the Roman era—and even mummies of crocodile eggs, have been found across Egypt. British Museum



CATS ▶
X-ray analysis conducted at the British Museum on Roman-era mummies such as these has revealed the method used to kill them: Their necks were broken. British Museum

THE HALLS OF HADES

In the myths of ancient Greece, dead souls and living heroes alike traveled to the underworld, a subterranean realm ruled by the taciturn god Hades. As Greek culture evolved, so did ideas about the afterlife and the kinds of rewards and punishments awaiting mortals there.

DAVID HERNÁNDEZ DE LA FUENTE

GUIDE TO THE OTHER SIDE
The messenger god Hermes also guided souls to the underworld. Here he is shown surrounded by the spirits of the dead waiting on the banks of the River Styx. Oil painting by Adolf Hirémy-Hirschl, 1898. Belvedere Gallery, Vienna

GRENZE IMAGES/ALBUM

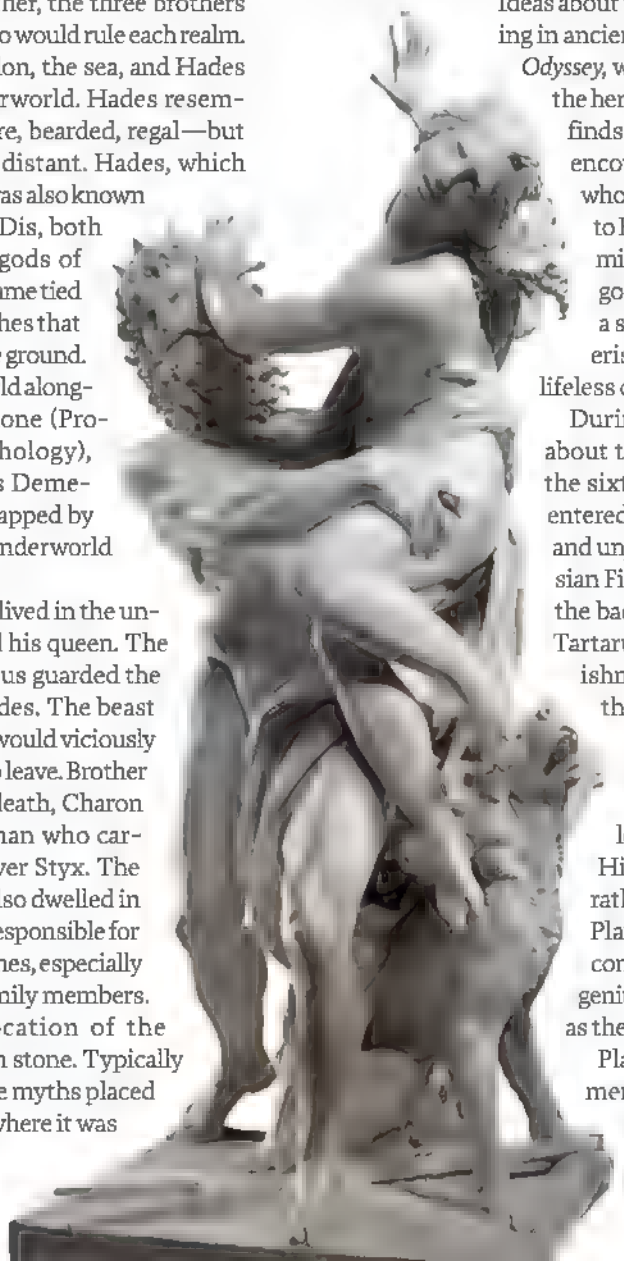
Heroes in ancient Greek myth might have had adventures on land or at sea, but sooner or later they all ended up in the same place: the land of the dead. Ruled by Hades, brother of Zeus and Poseidon, the underworld held an important place in Greek myth, appearing in tales of Hercules, Theseus, Orpheus, and Odysseus—heroes who all made it to hell and back.

Rulers of the Dead

After the six children of Cronus and Rhea overthrew their tyrannical father, the three brothers drew lots to determine who would rule each realm. Zeus won the sky, Poseidon, the sea, and Hades became lord of the underworld. Hades resembles his brothers—mature, bearded, regal—but remains aloof, cold, and distant. Hades, which means "the unseen one," was also known by the names Pluto and Dis, both names associated with gods of wealth. He most likely became tied to them because of the riches that came from underneath the ground. Hades ruled the underworld alongside his queen, Persephone (Proserpine in Roman mythology), daughter of the goddess Demeter. Persephone was kidnapped by Hades and taken to the underworld to be his bride.

Other divine creatures lived in the underworld with Hades and his queen. The three-headed dog Cerberus guarded the gates to the house of Hades. The beast would allow entrance but would viciously attack anyone who tried to leave. Brother to Thanatos, the god of death, Charon was the mythical ferryman who carried spirits across the River Styx. The three Furies, or Erinyes, also dwelled in Hades' domain and were responsible for punishing mortals for crimes, especially murder and murder of family members.

The geographical location of the underworld was not set in stone. Typically it was underground: Some myths placed the portals in volcanoes, where it was observed that toxic gases killed birds. A fissure in ancient Enna in Sicily is held by tradition to be where Hades kidnapped Persephone. Numerous caverns, including the Taenarum near Sparta, were also considered gateways to the underworld. One of the most famous is a cave in Cumae, near Lake Avernus, in Italy. Here lived a sibyl who was said to be able to tell the future. In Virgil's first-century B.C. poem the *Aeneid,* the Sibyl of Cumae counsels Aeneas before he travels to the underworld.



STEALING A QUEEN
Cerberus, guard dog of the underworld, hows as the god Hades abducts Persephone in this 1622 statue, created by sculptor Gian Lorenzo Bernini. Borghese Gallery, Rome

. ROMANO/SCALA, FLORENCE

Imagining the Afterlife

Ideas about the afterlife were constantly developing in ancient Greece. In Homer's epic poem *The Odyssey,* written around the eighth century B.C., the hero Odysseus visits the underworld and finds it a uniformly dreary, gray place. He encounters the Greek war hero Achilles, who asks him: "How did you dare to come to Hades' realm, where the dead live on as mindless, disembodied ghosts?" Achilles goes on: "I would rather work the soil as a serf, on hire to some landless, impoverished peasant than be King of all these lifeless dead."

During the centuries after Homer, ideas about the afterlife continued to evolve. By the sixth century B.C. an ethical dimension entered, as spirits were divided into the just and unjust. The good were taken to the Elysian Fields or the Isles of the Blessed, while the bad were consigned to the torments of Tartarus. This concept of reward and punishment might have been connected to the emerging idea of the immortality of the soul.

In the fourth century B.C. the philosopher Plato wrote *Phaedo,* a dialogue about the soul and the afterlife. His ideas about the underworld seem rather more familiar to modern minds. Plato wrote: "Now when the dead have come to the place where each is led by his genius, first they are judged and sentenced, as they have lived well and piously, or not." Plato's vision of rewards and punishments for the life lived on earth later tracked neatly onto Christian notions

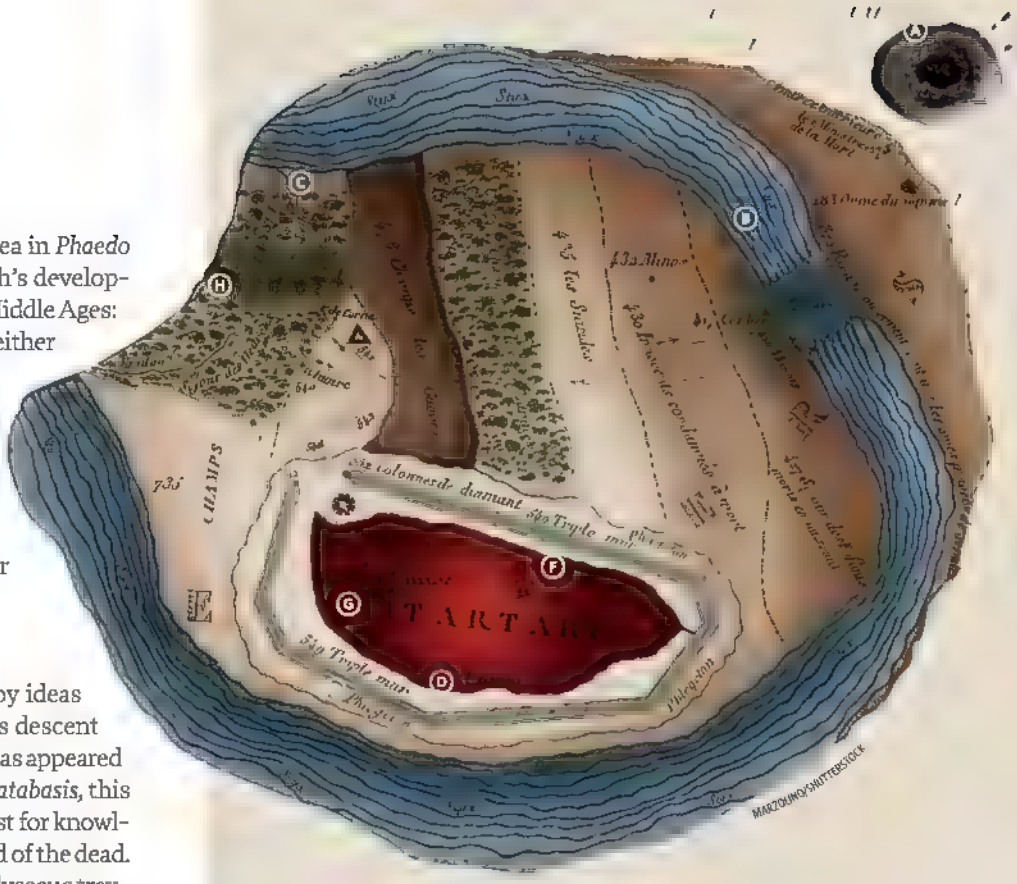
of judgment after death. One key idea in *Phaedo* even influenced the Catholic Church's development of the idea of purgatory in the Middle Ages: "Those who are found to have lived neither well nor ill, go to the Acheron [one of the rivers of the underworld] and, embarking upon vessels provided for them, arrive in them at the lake; there they dwell and are purified, and if they have done any wrong they are absolved by paying the penalty for their wrong doings."

Going to Hell

Literature was also deeply affected by ideas of the afterlife. The motif of a hero's descent to, and return from, the underworld has appeared in many myths. Known in Greek as *katabasis*, this journey often sends the hero on a quest for knowledge that can only be found in the land of the dead. Instructed by the sorceress Circe, Odysseus travels to the underworld to seek the advice of the deceased prophet Tiresias. Raised by the Muses, Orpheus uses his musical gifts to persuade Hades and Persephone to allow his beloved wife Eurydice to return to life. Hades grants him his request, on the condition that, as she follows him into the world above, he must not look back. Orpheus cannot resist the temptation to look over his shoulder, and to his anguish, Eurydice disappears to the land of the dead. As the last of his 12 labors, strongman Hercules must travel to the land of the dead to bring Cerberus back to the living.

The katabasis has appeared in countless other works from then until the modern era. In Virgil's *Aeneid*, Aeneas descends into the underworld to seek out his father, Anchises. The medieval poet Dante places the narrator of *The Divine Comedy* in the circles of hell. Modern writers use this motif as well: J. R. R. Tolkien employed elements of the katabasis in several places in *The Lord of the Rings*. Joseph Conrad's novel *Heart of Darkness*—the tale of one man's quest up and down the Congo River to retrieve a mad ivory trader—is often interpreted as a symbolic journey to hell. ■

HISTORIAN DAVID HERNÁNDEZ DE LA FUENTE IS A SPECIALIST IN CLASSICAL HISTORY AND ITS LEGACY IN CONTEMPORARY CULTURE



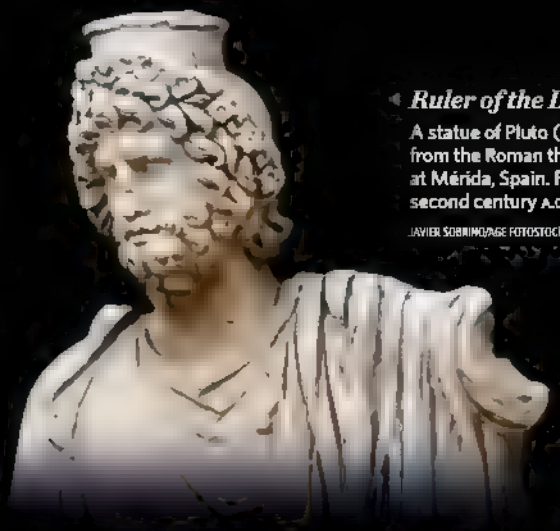
GEOGRAPHY OF THE UNDERWORLD

SINCE ANTIQUITY, writers' descriptions of Hades' kingdom have inspired artists to sketch what the landscape of the Greek underworld might look like. The 1850 French illustration, above, is one example. In the minds of the Greeks, the underworld was an actual physical place that had geographical features such as rivers, fields, and caverns. Ⓐ **The entrance** to the underworld lay outside the realm. According to Greek authors, five rivers existed in the underworld. The most famous, the Ⓑ **River Styx,** bounded it and could only be crossed with the help of the ferryman, Charon. A common death ritual was to place a coin in the mouth of the deceased to pay for the journey. Some myths claimed that if the fee went unpaid, the souls had to wander the shore for a hundred years. The Ⓒ **River Lethe,** the river of oblivion, contained water that produced forgetfulness in whoever drank from it. The last three rivers—Ⓓ **Acheron,** the river of woe, Ⓔ **Phlegethon,** the flaming river; and Ⓕ **Cocytus,** the river of lamentation—flowed around Ⓖ **Tartarus,** a deep abyss of eternal torment where those judged wicked were sent to be punished for eternity. The souls of those judged to have lived good lives spend their afterlives in the Ⓗ **Elysian Fields.**

1

MASTERS OF MORTALITY

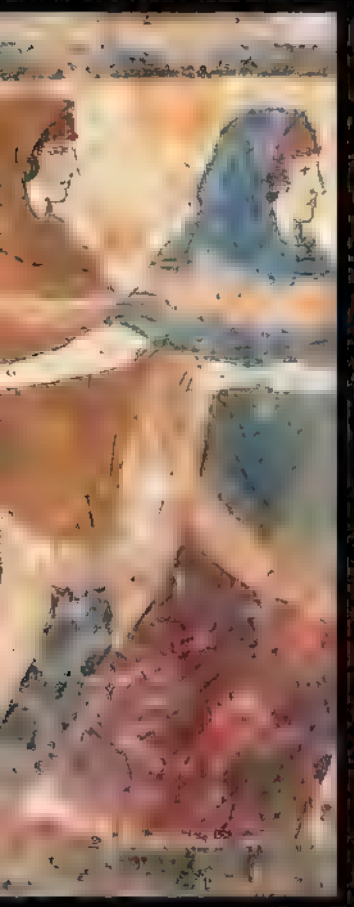
GODS OF LIFE AND DEATH



Ruler of the Dead
A statue of Pluto (Hades) from the Roman theater at Mérida, Spain. First to second century A.D.

JAVIER SOBRINO/AGE FOTOSTOCK

IN ANCIENT GREEK culture, death came in many forms with both positive and negative attributes. **Hades,** sovereign of the underworld—also known as **Pluto**—was often referred to as "the rich one." Some writers suggest this is a euphemism, to avoid speaking his dreaded name. Other scholars believe it is because Hades was associated not just with death but with the wealth of precious metals and gems, which both come from his realm deep within the ground. Hades only presided over the dead; he did not decide when mortals died or deliver death itself. The Fates, also called the **Moirai,** were three goddesses who determined how long a person's life would last: Clotho spun the thread of life, Lachesis measured it, and Atropos cut it at life's end. Death itself could come in several forms. **Thanatos** was the god of death. Some believed he delivered peaceful, nonviolent ends. The **Keres,** on the other hand, were death goddesses that the poet Hesiod associated with violent, painful demises, especially on the battlefield. ■



Measuring a Man's Life

Three goddesses—the Fates—were responsible for apportioning the length of human life, a decision which not even the gods could change. The baleful presence of the Fates is a recurring theme in art history, such as in this 16th-century oil painting by Francesco Salviati from the Palazzo Pitti in Florence. It depicts the Fates as three old women about to cut the thread.

AKG/ALBUM

Grieving in Ancient Greece

During burials, women walked behind the procession and—unless they were close relatives—could only attend if they were over 60. Flutists, singers, mourners, and dancers were hired for the funeral, as shown in this scene from a fourth-century B.C. tomb in Ruvo, Italy.

NATIONAL ARCHAEOLOGICAL MUSEUM, NAPLES/BRIDGEMAN/ACI

Death Has Wings

Placed in tombs as an offering, *lekythos* vessels were often decorated with scenes. The one shown here is by the so-called Thanatos Painter from the fifth century B.C. It portrays the gods Thanatos (Death) and his twin Hypnos (Sleep) carrying a warrior's body. British Museum, London

BRITISH MUSEUM/SCALA, FLORENCE

2

THE FINAL JOURNEY

WELCOME TO THE UNDERWORLD

THE SOULS OF THE DEAD were transported from the tomb to the entrance of the underworld by the god **Hermes** in the role of *psychopompos*, or soul guide. On the banks of the River Styx, they waited for the decrepit ferryman **Charon** to transport them across the river. Son of Nyx (Night) and Erebos (Darkness), Charon was often depicted as an old, bearded man carrying a pole. After paying the ferryman (the dead were often buried with a coin in their mouth for Charon), they crossed the river. Next they would appear before the three judges of the dead, all sons of Zeus: **Aeacus, Minos,** and **Rhadamanthus.** These three had been mortal and were granted their positions after death as reward for their wisdom and fairness in life. The trial of the soul determined the reward or punishment for the deceased. In some accounts Rhadamanthus was known for his harshness, while Aeacus was gentler and more merciful. In the case of any ties, it was Minos who cast the deciding vote on the fate of the soul. Another account divides up the judges by geography rather than personality: Aeacus judged the people of Europe, Rhadamanthus the people of Asia, with Minos still casting the third and final vote. ■

Sitting in Judgment

The 19th-century French artist Gustave Doré imagines the souls of the dead as they plead their cases before the three great judges of the underworld, Minos, Rhadamanthus, and Aeacus.
Museum of Fine Arts, La Rochelle, France

BRIDGEMAN/ACI

Crossing Over

The early 20th-century Spanish painter José Benlliure's vision of the journey to the underworld in Charon's boat. The ferryman is a hideous, skeletal creature with a wild gray beard. Here, he handles the pole himself. In other accounts, the deceased souls were forced to row the boat.
Museum of Fine Arts, Valencia, Spain

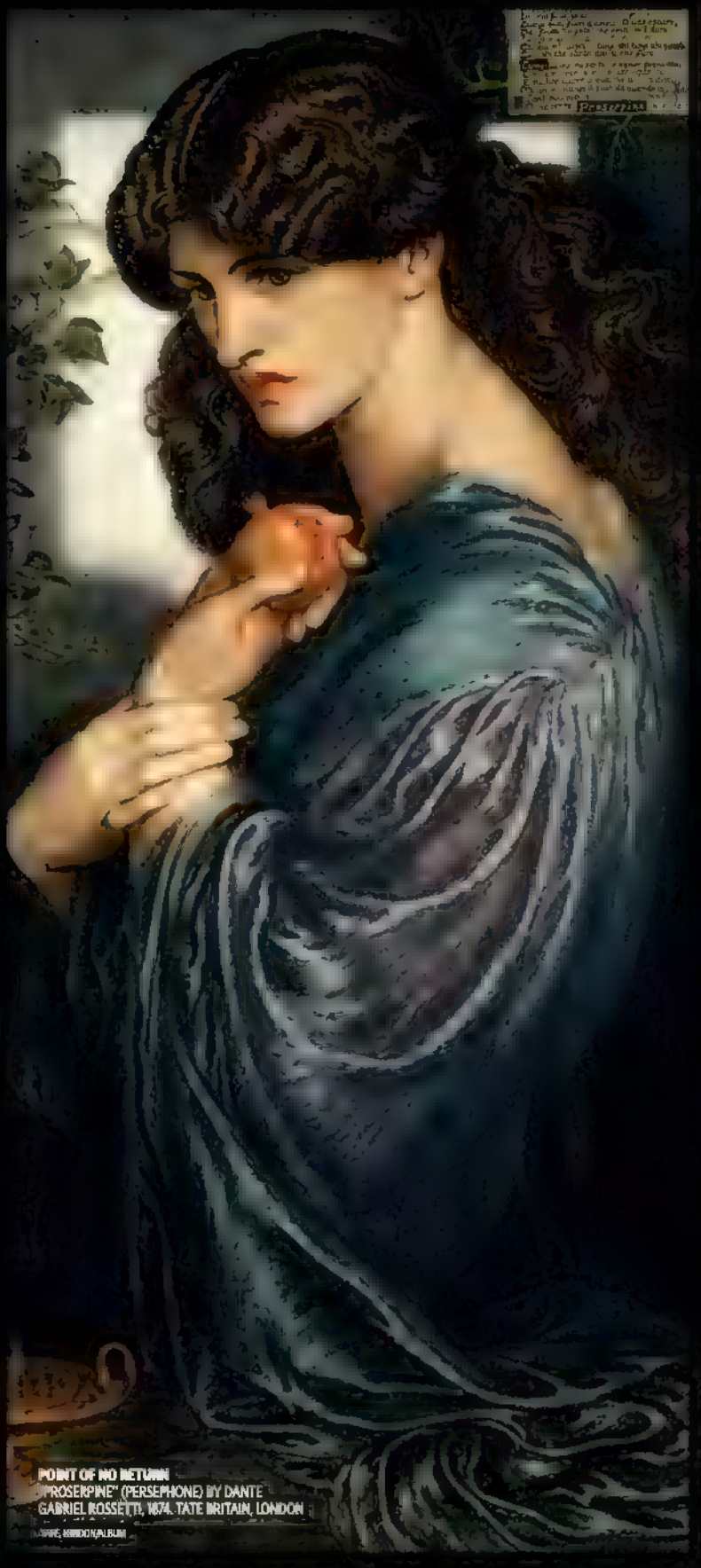
MUSEO SAN PIO V, VALENCIA/BRIDGEMAN/ACI

3

RELUCTANT RULER

QUEEN OF THE DEAD

THE ANCIENT GREEKS initially saw the underworld as a gloomy place, devoid of light and air. Hades presides over it with his wife, **Persephone** (called Proserpine by the Romans), whom he kidnapped after being captivated by her beauty. Persephone was an unwilling resident and longed to return to the world above. Persephone's mother and goddess of agriculture, Demeter, roamed the earth in search of her missing daughter after she disappeared. Nothing would grow until Demeter found her. Rather than let the world starve, Zeus ordered Hades to return Persephone so that Demeter would allow the earth to bloom again. But the mother and child reunion was bittersweet, for Persephone had eaten the seeds of a pomegranate while in the underworld. Anyone who tasted the food in the land of the dead could not return to the land of the living. As a compromise, Zeus allowed Persephone to spend a portion of the year with her mother and the other part of the year with Hades. When Persephone returns to her mother, the world grows warm and green throughout the spring and summer months. After she returns to Hades, the world darkens and cools during fall and winter. Persephone's comings and goings came to explain the changing seasons, and the queen of the dead also became known as the goddess of spring. ■



POINT OF NO RETURN
"PROSERPINE" (PERSEPHONE) BY DANTE GABRIEL ROSSETTI, 1874. TATE BRITAIN, LONDON

An Egyptian Twist

These first-century B.C. statues of Hades, Persephone, and Cerberus were found on the island of Crete in a temple dedicated to the Egyptian goddess Isis and the Greco-Egyptian god Serapis. Their presence attests to the blending of different cults in the ancient world: Persephone is assigned symbols related to Isis, such as the crescent moon on her forehead, while Hades wears a *kálathos*, a headdress worn by Serapis. Heraklion Archaeological Museum, Crete

SCALA, FLORENCE

4

PRISON AND PUNISHMENT

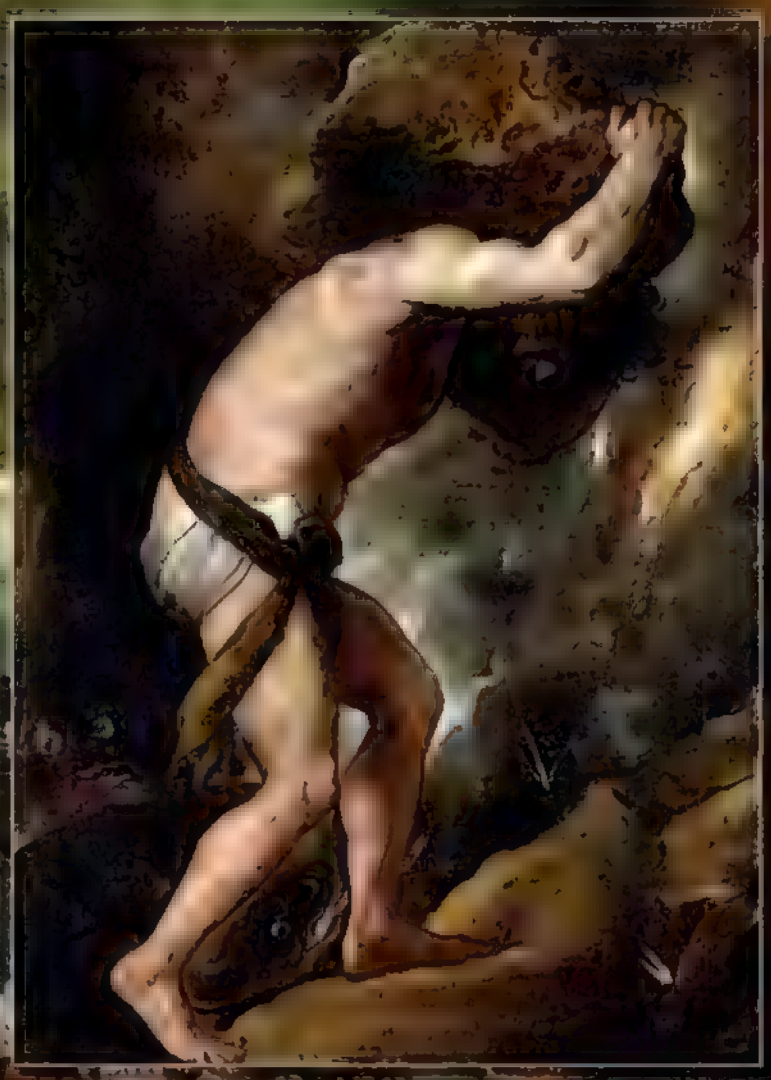
THE TORMENTS OF TARTARUS

THE REGION OF TARTARUS was envisioned as a bottomless abyss located far beneath the underworld. In myth, it was often used as a prison for defeated deities: After the Titan Cronus overthrew his father, the sky god Uranus, Cronus used it to incarcerate his hideous brothers, the Cyclopes and the Hecatoncheires (hundred-handed giants). Before the battle to usurp his father, Zeus freed them so they could fight with him against Cronus and the rest of the Titans. When Zeus and the Olympic gods triumphed, they cast down Cronus and his allies to Tartarus. Later myths imagined Tartarus as the setting for the carrying-out of divine punishments against mortals. The sentences were often as diabolical as the crimes. For instance, the king Tantalus—who murdered his own son and served his flesh to the gods—is condemned to suffer thirst and hunger for all time. Made to stand in a pool of water, bunches of ripened fruit are hung over his head. If he stoops to drink from the pool, the water recedes; if he reaches for food, it sways out of reach; thus "tantalizing" him for eternity. Another myth describes the Danaids, King Danaus's 50 daughters, who all slew their husbands on their wedding night. Sentenced to Tartarus, their divine punishment is to try to fill a tub with water to wash away their crimes—but no matter how much water they pour into it, the tub leaks and can never be filled. ■

Juno's Revenge

Jan Brueghel the Elder's 1590s painting imagines the descent of Juno (Hera, in Greek) into the underworld as told in Ovid's *Metamorphoses*. Furious with a mortal queen, Juno asks the Furies—terrifying goddesses of vengeance who dwell in the underworld—to drive the queen and her family insane. Staatliche Kunstsammlungen Dresden

BRIDGEMAN/ACI



Hard Labor

In this 1548-49 oil painting, Titian depicts the terrible suffering inflicted on Sisyphus, the trickster who dared deceive Hades himself. His punishment in Tartarus is to push a rock up a hill, only to watch it roll down again, whereupon he must push it back up again—forever. Prado Museum, Madrid

ALBUM

One Bad Turn

After Zeus pardoned him for killing his father-in-law, Ixion—king of the Lapiths—did something rather foolish: He tried to seduce Zeus's queen, Hera (Juno). In Tartarus Ixion was bound to a fiery wheel, for his eternal punishment, graphically depicted in this 1876 oil painting by Jules-Élie Delaunay. Museum of Fine Arts, Nantes, France

BRIDGEMAN/ACI

5

THE KATABASIS

GOING DOWN TO HADES

IN A WEALTH OF GREEK MYTHS, many brave and clever heroes must find their ways into and out of the realm of Hades—some to retrieve a lost love, others to gain secret knowledge, and others to achieve an impossible task. Classical scholars call this perilous journey the *katabasis* ("a going down"). The musician Orpheus travels there to reunite with his dead wife, Eurydice. The trickster Odysseus must seek the advice of the dead prophet Tiresias. Along with Orpheus and Odysseus, the mighty Hercules ventured into Hades' kingdom to carry out his 12th labor: the capture of the many-headed hound of hell, Cerberus. Hades attempts to prevent the hero from entering, but Hercules is so powerful that he wounds the immortal Hades, who then has to be taken to Mount Olympus for healing. Hercules' journey enables him to rescue someone else who embarked on a *katabasis*: Theseus, the legendary founder of Athens. Theseus had accompanied his friend Pirithous, king of the Lapiths, who wished to kidnap Persephone and make her his bride. Their quest failed, and Pirithous and Theseus are trapped, stuck to a rock face. Hercules manages to rescue Theseus, who returns to the land of the living, but cannot free his companion Pirithous, who remains imprisoned. ■

Dog Catcher

For his 12th labor, Hercules must enter the underworld and capture Cerberus the guardian of the gates. Hades agrees Hercules can have the dog, but only if he can subdue him, a moment re-created in this black-figure vase from the sixth century B.C.

DEA/GETTY IMAGES

An Offering to the Dead

In *The Odyssey* Homer recounts how Odysseus travels down to the kingdom of Hades to speak to the deceased prophet Tiresias about the dangers awaiting him on his return home to Ithaca. This second-century bas-relief shows the hero offering a blood sacrifice to the spirit of Tiresias, to induce him to answer the hero's questions. Louvre Museum, Paris

H. LEWANDOWSKI/RMN-GRAND PALAIS

Don't Look Back

Hades and Persephone allow Orpheus to return to earth with his beloved Eurydice on one condition: Orpheus and Eurydice are not allowed to look back during their return. In this 1861 oil painting, Jean-Baptiste Corot shows the couple after crossing the River Styx, about to leave the underworld, but Orpheus cannot avoid turning and so loses his beloved forever. Museum of Fine Arts, Houston

BRIDGEMAN/ACI

The Original Superdome

PUZZLES OF THE PANTHEON

THE SOARING DOME OF ROME'S PANTHEON HAS BEEN WOWING VISITORS FOR NEARLY 2,000 YEARS. DESPITE BEING ONE OF THE EMPIRE'S BEST PRESERVED STRUCTURES, THE BUILDING'S ORIGINAL PURPOSE AND CONSTRUCTION REMAIN ONE OF ROME'S GREATEST MYSTERIES.

LUIS BAENA DEL ALCÁZAR

DIVINE SUNLIGHT
Ever changing light floods through the oculus that pierces the mighty dome spanning Rome's Pantheon. Dedicated by Emperor Hadrian in the second century A.D., it was built on the site of an earlier structure raised to glorify Augustus.
GIOVANNI SIMEONE/FOTOTECA ENIT

Twenty-seven B.C. was an important year for Rome. In January Octavian proclaimed himself Augustus, becoming the sole ruler of Rome. His son-in-law, Marcus Vipsanius Agrippa, marked the event by laying the foundation for what would become one of Rome's most famous monuments: the Pantheon. Damaged by fire in 80 A.D., it was restored to glory by 128 and went on to achieve lasting architectural fame.

There is some confusion over what Agrippa's original Pantheon looked like, what it was for, and even whether it was called the Pantheon at all. Agrippa had accrued a colossal fortune from his military campaigns under Augustus, and he decided to spend it developing the area known as the Campus Martius (Field of Mars) that then lay outside the city walls. Agrippa's new monuments included the Basilica of Neptune, a deity whom Agrippa and Augustus, both victors of key naval battles, had special cause to thank. An impressive new public bath complex entailed major infrastructure, and Agrippa is credited with creating the template for the water system that served imperial Rome for years to come.

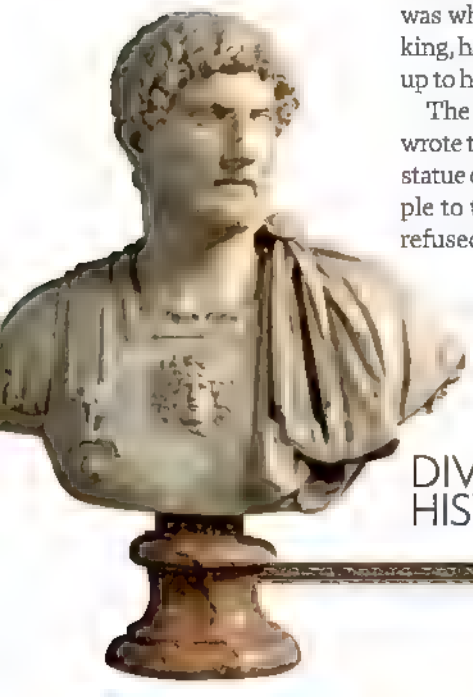
By far the most impressive part of the site, however, was the first Pantheon, a monumental temple. Placing it on the Field of Mars was a symbolic act because, according to legend, this was where Romulus, Rome's founder and first king, had been caught up in a great storm, taken up to heaven, and converted into a god.

The second-century historian Dio Cassius wrote that Agrippa had intended to erect a great statue of Augustus inside and dedicate the temple to the new emperor, but Augustus wisely refused the honor: Julius Caesar, his adoptive father, had been assassinated due to fears that he had kingly ambitions.

Dio Cassius speculated that the temple may have been dedicated to the gods of Rome, or—his own preferred theory—"that its dome resembled the heavens." His writings have caused headaches for historians—not only because dedicating a temple to all the gods was unusual, but also because the reference to a dome makes it unclear if he is writing about Agrippa's original structure or a later incarnation.

Whatever its form or function, Agrippa's Pantheon was badly damaged by fire in A.D. 80 and repaired by Emperor Domitian. Later, as part of an urban reform effort begun by Emperor Hadrian shortly after his accession in 117, the old temple was pulled down to make way for the building that stands today. To structures he restored or rebuilt, Hadrian often added inscriptions praising the original builders. The Pantheon was no exception: Below the pediment of the main facade is an inscription in bronze letters that reads: "*M[arcus] Agrippa L[ucii] f[ilius] co[n]s[ul] tertium fecit*—Marcus Agrippa, son of Lucius, made [this building] when consul for the third time." Despite this homage, Hadrian's architects, who have not yet been definitively

IMPERIAL DESIGN
Over a century after the first flurry of imperial monument-building began under Augustus, Hadrian—shown here in a second-century bust from the Uffizi Gallery, Florence—dedicated his reign to beautifying Rome further, and rebuilt the Pantheon.
SCALA, FLORENCE



DIVINE HISTORY

27 B.C.
Work on the first Pantheon begins in the same year that Octavian becomes emperor.

A.D. 81
After the building is damaged by fire, Domitian repairs the original Pantheon.

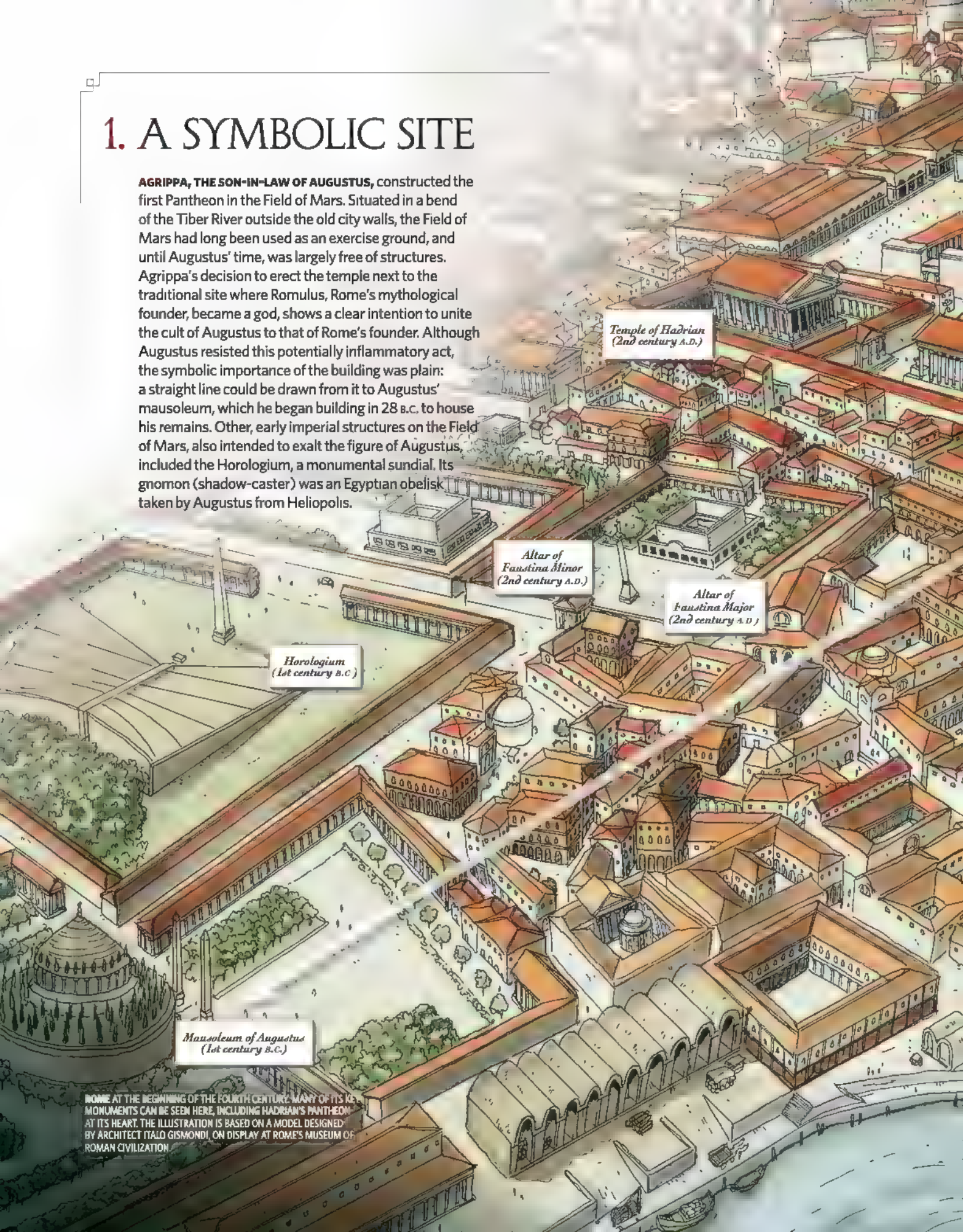
A.D. 118-125
Emperor Hadrian constructs a magnificent new Pantheon, which is topped by a massive concrete dome.

A.D. 609
Pope Boniface IV consecrates the Pantheon as the Church of Santa Maria ad Martyres.

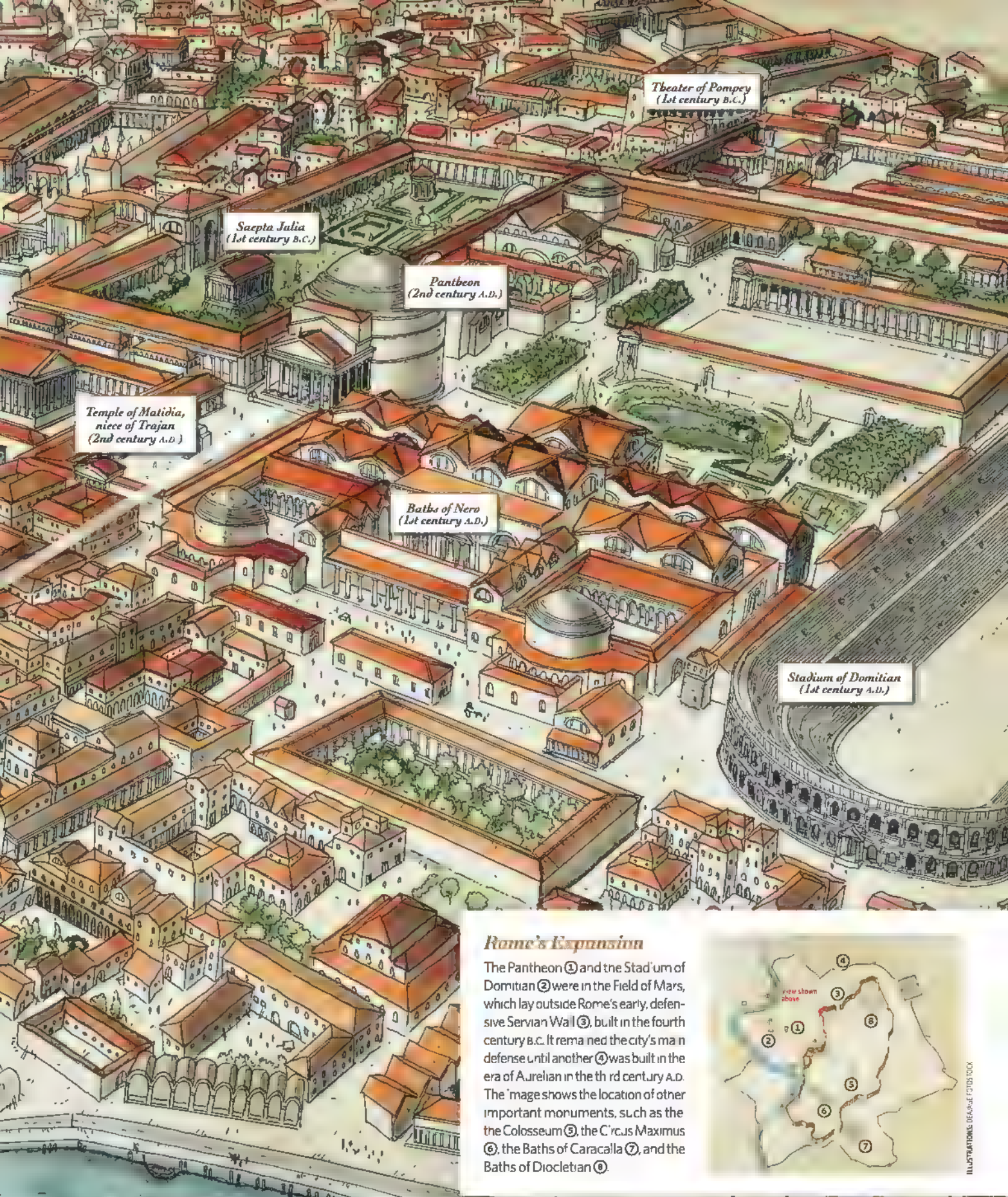
URBAN RENEWAL
Seven concrete rings that give rigidity to the Pantheon's dome are clearly visible from above. The site of the modern-day Piazza della Rotonda was once part of the Field of Mars, intensively developed by Augustus' son-in-law, Agrippa.

1. A SYMBOLIC SITE

AGRIPPA, THE SON-IN-LAW OF AUGUSTUS, constructed the first Pantheon in the Field of Mars. Situated in a bend of the Tiber River outside the old city walls, the Field of Mars had long been used as an exercise ground, and until Augustus' time, was largely free of structures. Agrippa's decision to erect the temple next to the traditional site where Romulus, Rome's mythological founder, became a god, shows a clear intention to unite the cult of Augustus to that of Rome's founder. Although Augustus resisted this potentially inflammatory act, the symbolic importance of the building was plain: a straight line could be drawn from it to Augustus' mausoleum, which he began building in 28 B.C. to house his remains. Other, early imperial structures on the Field of Mars, also intended to exalt the figure of Augustus, included the Horologium, a monumental sundial. Its gnomon (shadow-caster) was an Egyptian obelisk taken by Augustus from Heliopolis.


Temple of Hadrian (2nd century A.D.)
Altar of Faustina Minor (2nd century A.D.)
Altar of Faustina Major (2nd century A.D.)
Horologium (1st century B.C.)
Mausoleum of Augustus (1st century B.C.)

ROME AT THE BEGINNING OF THE FOURTH CENTURY. MANY OF ITS KEY MONUMENTS CAN BE SEEN HERE, INCLUDING HADRIAN'S PANTHEON AT ITS HEART. THE ILLUSTRATION IS BASED ON A MODEL DESIGNED BY ARCHITECT ITALO GISMONDI, ON DISPLAY AT ROME'S MUSEUM OF ROMAN CIVILIZATION.



Rome's Expansion

The Pantheon ① and the Stadium of Domitian ② were in the Field of Mars, which lay outside Rome's early, defensive Servian Wall ③, built in the fourth century B.C. It remained the city's main defense until another ④ was built in the era of Aurelian in the third century A.D. The image shows the location of other important monuments, such as the the Colosseum ⑤, the Circus Maximus ⑥, the Baths of Caracalla ⑦, and the Baths of Diocletian ⑧.

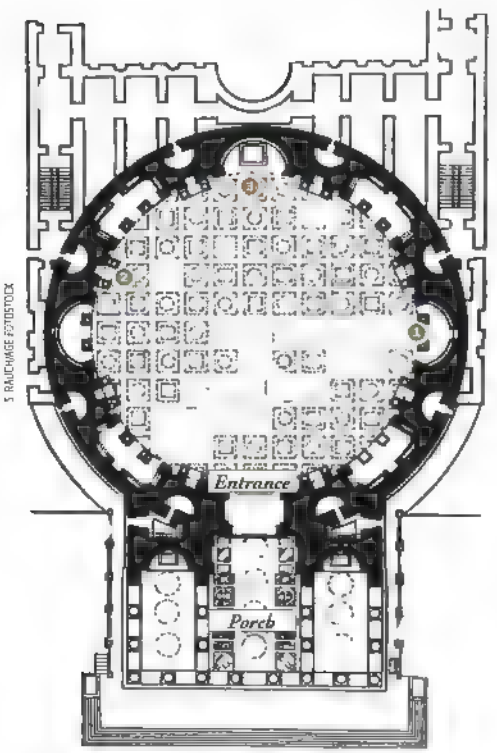
ILLUSTRATIONS: DEA/A. DE ROTA/SCALA, FIRENZE/BRIDGEMAN IMAGES

Hadrian's architects set out to create a structure resembling nothing that had been built before, using techniques that amaze engineers today.

identified, created a structure that surpassed the original, using building techniques that still baffle engineers today.

Although the purpose of the Pantheon in this era is debated by scholars, Dio Cassius states in his history that the emperor Hadrian used it for government purposes and "transacted with the aid of the Senate all the important and most urgent business and he held court with the assistance of the foremost men, now in the palace, now in the Forum or the Pantheon or various other places, always being seated on a tribunal, so that whatever was done was made public."

Surviving the decline of the Roman Empire, the Pantheon emerged relatively unscathed from the sacks of the city itself. In 609 the Pantheon transformed from a pagan temple into a Christian church, now known as Santa Maria ad Martyres. The building's consecrations probably helped it become one of the best preserved of all Roman buildings in the world, surviving centuries of war and upheaval.



S RAUCHWIGE/FOTOLIA

Flanked by twin pillars, the niches carved into the thick walls of the rotunda are dedicated to Christian themes, such as the Crucifixion and the Annunciation (the announcement to the Virgin by the angel Gabriel that she will conceive and bear Jesus).

As a church, the Pantheon was adorned with numerous masterpieces of Christian sculpture and art from the Renaissance and baroque periods.

Interest in classical monuments grew during the Renaissance, and the Pantheon's heritage intrigued artists from the 15th century onward. The church also contains the tombs of the great 16th-century painters Raphael and Annibale Carracci. Following his death in 1878, the first king of a united Italy, Victor Emmanuel II, was buried in the Pantheon, a clear sign of the building's symbolic significance for the nation of Italy.

PLAN OF THE PANTHEON
1. TOMB OF VICTOR EMMANUEL II
2. TOMB OF RAPHAEL
3. HIGH ALTAR

Molding a Monument

When the Pantheon was rebuilt during Hadrian's rule, it broke new architectural ground, but the exterior might have deceived visitors into thinking the new temple was traditional. The level of the piazza was lower then than it is today, so the magnificent rotunda and the famous dome were both hidden from sight. From the outside, the Pantheon still resembled a traditional Greco-Roman temple, with a triangular gable borne on 16 Corinthian columns. Standing nearly 40 feet tall and made of granite, each column weighed about 60 tons. They were imported from Egyptian quarries, floated down the Nile on barges and then on boats across the Mediterranean to Italy, until their journey ended in Rome. The traditional facade was impressive, but no one could ever have anticipated the magnificent sight awaiting them inside.

Upon entering, the initial impression was of a vast, soaring space. Today, just as 2,000 years ago, the architecture draws the gaze upward to the curving surface of the dome. At about 142 feet in diameter, it was, for centuries, the widest unsupported span ever built. There is some debate as to whether the 15th-century dome over Florence's Santa Maria del Fiore equals or surpasses the diameter of the Pantheon's dome. In any case, both structures were only bested by modern construction techniques in the 20th century.

This dome (also known as a cupola) rests on a sturdy cylindrical base some 20 feet thick, which in turn sits on foundations of rubble-based Roman concrete. The rotunda was constructed in three sections separated by cornices. Each

MAKING AN ENTRANCE
The portico of the Pantheon, viewed from Giacomo della Porta's 16th-century fountain in the Piazza della Rotonda. The inscription on the frieze is dedicated to the builder of the first Pantheon, Marcus Vipsanius Agrippa.
RAINER HIRAU/FOTOTECA 9X2

2. RISE OF THE ROMAN DOME

INSPIRED by Greek and Etruscan models, Roman temples were generally rectangular. The Pantheon, fronted by a conventional portico, broke with tradition. Its innovative rotunda and cupola soon exerted a major influence on Roman religious architecture. The Temple of Venus at the Baiae thermal springs near modern-day Naples, for example, and the Temple of Apollo on the shores of Lake Avernus—both from the middle of the second century A.D. —echo the Pantheon's design. The form influenced the Mausoleum of Helena, built by Constantine the Great in honor of his mother on the outskirts of Rome in the fourth century. The dome later became an important characteristic of Christian architecture, whose most visible manifestation in Rome would be the 16th-century cupola atop St. Peter's Basilica at the Vatican.

Oculus
Some 27 feet in diameter, the Pantheon's distinctive aperture is its only source of natural light.

Pediment
Following construction, it is believed to have borne the image of an eagle wearing a crown.

Inscription
Despite being totally rebuilt under Hadrian, the inscription is dedicated to Agrippa, builder of the original Pantheon in 27 B.C.

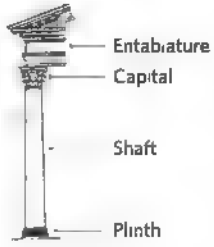
Niches
[illegible] niches on either side of the propylaea are believed to have [illegible] statues of Agrippa and Augustus.

Portico
The facade of the portico has eight frontal columns, a classic arrangement termed "octastyle." It measures 112 feet by 50 feet and originally stood over four feet above the level of the piazza.

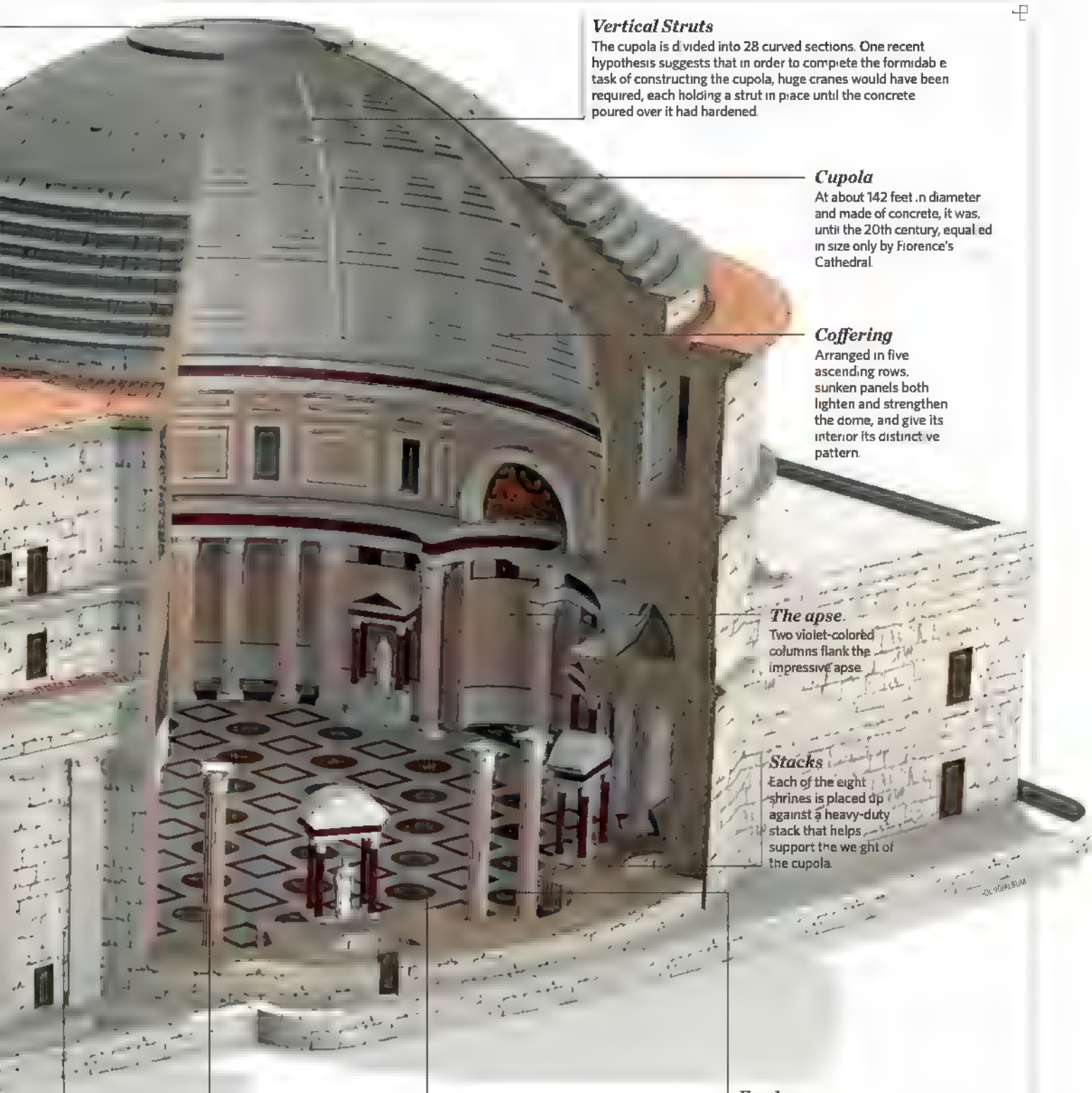
Columns and Entablature
The portico's 16 columns are each made from a single piece of stone. The eight in front are of gray granite, the eight behind of red granite. They each stand nearly 40 feet tall. The entablature—comprising architrave (lower beam), frieze (central, wider beam, bearing the inscription to Agrippa), and cornice (upper beam)—is carved from marble.

CORINTHIAN ORDER

The capitals that top the columns of the Pantheon are designed in typical Corinthian style, decorated with a pattern of acanthus leaves.



SOL ROSALBUM



Vertical Struts
The cupola is divided into 28 curved sections. One recent hypothesis suggests that in order to complete the formidable task of constructing the cupola, huge cranes would have been required, each holding a strut in place until the concrete poured over it had hardened.

Cupola
At about 142 feet in diameter and made of concrete, it was, until the 20th century, equaled in size only by Florence's Cathedral.

Coffering
Arranged in five ascending rows, sunken panels both lighten and strengthen the dome, and give its interior its distinctive pattern.

The apse
Two violet-colored columns flank the impressive apse.

Stacks
Each of the eight shrines is placed up against a heavy-duty stack that helps support the weight of the cupola.

Vestibule
This monumental entrance made of brick includes two staircases leading to the upper part of the building.

Floor
Built in a convex form, the floor's center is about a foot higher than the outer edge. Rain that enters through the oculus drains toward a channel running around the perimeter.

Shrines
It is believed that statues of the Roman gods would have stood in each of the eight shrines. The shrines are formed of smooth columns made of porphyry or granite and fluted with Numidian marble bearing alternating triangular and curved pediments.

Exedrae
Carved into the wall are six exedrae, or recesses. Two are circular and have columns made of Phrygian marble from Turkey, prized for its distinctive violet color with white veins. The other four exedrae are rectangular, with columns made of yellowish Numidian marble from Chemtou (Tunisia). All the capitals are carved from white Pentelic marble from Greece.

The rays of the sun, entering through the oculus, illuminate different niches of the Pantheon, depending on the time of day and the season.

level is made of progressively lighter material the higher up it goes. The lowest level of the building consists of cement mixed with travertine (a kind of limestone), and the highest level is a mix of brick and tufa, a light volcanic rock.

The dome was made using a similar approach. Concrete combined with fragments of porous limestone make up the lower levels of the dome. As the dome rises, the concrete contains lighter stone. At the highest levels, artisans used pumice. Later, possibly during the reign of Emperor Severus, engineers incised five rows of indented slabs, known as "coffering," into the dome, reducing its weight but still maintaining its strength. At the very top of the dome is a round window, called the oculus, where sunlight streams in. Measuring about 27 feet across, this opening is the Pantheon's only light source.

The Pantheon was not the only Roman building to be topped by a dome. Similar, much smaller structures existed at that time, such as at the Sanctuary of Asclepius in Pergamon, which may also have been commissioned by Hadrian. The size and engineering audacity of Rome's Pantheon has been an enduring model for large, domed buildings throughout history. Although he used a different construction technique, Renaissance architect Filippo Brunelleschi was inspired by the biggest dome in the world when he designed the cupola for Florence's Santa Maria del Fiore in the early 15th century. Other monuments, such as the late 17th-century chapel of Les Invalides in Paris and Christopher Wren's St. Paul's Cathedral in London, also drew their inspiration from Hadrian's masterpiece.

Deciphering the Dome

How Roman architects solved the technical problems involved in the construction of such a large dome has long confounded scholars. Since the Renaissance, architects have studied the engineering behind the feat. A key question is what kind of scaffold the Romans constructed to support the dome as the concrete was poured. Some theorized it was a forest of wooden struts that reached to the floor; arguments against this idea pointed to the immense strain that would have been placed on Rome's timber supply. Others posited the creation of a framework that was attached to the walls of the rotunda itself.

Most evidence points to the dome being built slowly and in stages. A layer of concrete would be applied over the framework and then allowed to set. After each layer had dried, the next would be added. The concrete used in the dome became progressively lighter as the dome rose higher. After the cupola was completed, a series of strong brick arches and piers was constructed within the thick walls of the rotunda to further support it.

Beyond the enigma surrounding its construction, there is also much debate over the Pantheon's symbolism. Dio Cassius' speculation that the building's ceiling symbolizes the "celestial dome" has endured since the second century. In his view, the earthly realm corresponds to the ground levels of the building, while the heavens were embodied by the magnificent curves of the cupola.

Then, as now, the light filtering through the oculus progressively moves around and illuminates the niches of the rotunda depending on the time and the season. At noon on April 21, the date of Rome's founding, the sun's rays directly fall on the entrance to the rotunda. Upon entry to the temple, a figure—perhaps it was once Hadrian himself?—would be bathed in sunlight, a moment of symbolic significance that would place him at the center of the empire.

Even if the Pantheon was never intended as a literal re-creation of the cosmos, the carefully designed proportions of the building do seem to suggest parallels between the workings of the heavens and earthly, imperial power. The awe that the Roman Pantheon has inspired down the generations was perhaps best expressed by Michelangelo, the painter of the Sistine Chapel, who described the design of the Pantheon as "angelic, not human."

LUIS BAENA DEL ALCÁZAR IS PROFESSOR OF ARCHAEOLOGY AT THE UNIVERSITY OF MÁLAGA, SPAIN

DOOR TO DOOR
Visitors enter the rotunda through two, 24-foot-high monumental bronze doors. The current doors date to the 15th century, a sign of the renewed Renaissance interest in restoring the building to its former glory. The original doors, it is believed, were plated in gold.

MIMMO JODICE/FOTOTECA 9X12

3. HEAVENLY SPHERES

THE INTERIOR of the Pantheon's drumlike rotunda is remarkable because its height is exactly the same as its diameter—142 feet. If the outline of the interior of the dome was continued so it became a regular sphere, its bottom half would perfectly fill the space available (see the area marked in light blue in the image). Although there is no proof that Hadrian and his architects were consciously following a philosophical model, the monument's proportions have been interpreted to reflect the idea of a cosmos formed of celestial spheres, as perceived by Aristotle in the fourth century B.C.

CROSS SECTION OF THE PANTHEON BY GEORGES CHEDANNE. 1891. PENCIL, CHINESE INK, AND WATERCOLOR. ÉCOLE NATIONALE SUPÉRIEURE DES BEAUX-ARTS, PARIS

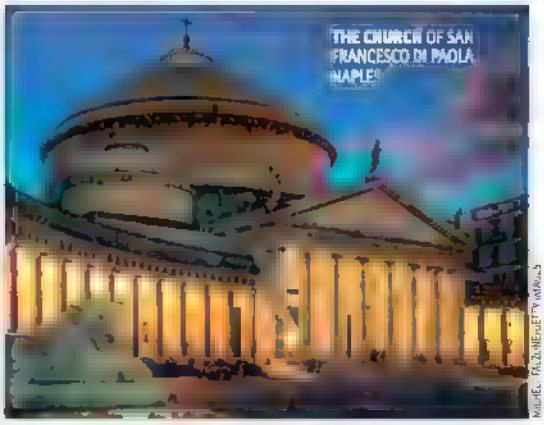
BEAUX-ARTS DE PARIS/RMN-GRAND PALAIS

RITE OF SPRING
At noon on April 21, rays from the sun shine into the Pantheon through the dome's oculus, illuminating the entrance to the rotunda. This coincides with the date celebrated as the foundation of Rome: April 21, 753 B.C. Some believe Hadrian ordered the building to be aligned in this way to enhance his aura of divinity.

MATT SAVAGE/FOTOSTOCK

4. A HISTORY OF WORSHIP

DESPITE THE PANTHEON'S architectural unity, many changes to its fabric and function have been carried out over the centuries. In 609 the Byzantine emperor Phocas gave the building to Pope Boniface IV, who consecrated it as Santa Maria ad Martyres, its official title to this day. Were it not for this new role, its capitals and columns might have been cannibalized. The Pantheon did not escape entirely unscathed, however. In the 17th century Pope Urban VIII had the bronze roof of the portico ripped off and ordered two bell towers to be erected, although these were later removed. The choice of the Pantheon as the resting place for great Italian figures such as Raphael inspired French revolutionaries centuries later to deconsecrate a church in Paris for the same reason. Renamed the Panthéon, it is the burial site of, among others, the French novelist Victor Hugo, a repurposing that shows how much the term "pantheon" continues to evolve over time.



Rise of the Dome: The Pantheon's Cupola in Context

A.D. 65 Domus Aurea (Nero's house), Rome: 43 ft in diameter
118-125 Pantheon, Rome: 142 ft
Second century Temple of Venus, Baiae: 86 ft
Second century Temple of Apollo, Lake Avernus: 116 ft
326-330 Mausoleum of Helena, Rome: 66 ft
532-537 Hagia Sophia, Istanbul (Constantinople): 107 ft
1420-1434 Santa Maria del Fiore, Florence: 142 ft
1585-1590 St. Peter's Basilica, Vatican City: 136 ft
1680-early 1700s Les Invalides, Paris: 91 ft
1675-1710 St. Paul's Cathedral, London: 101 ft
1755-1792 Panthéon, Paris: 69 ft
1817-1826 San Francesco di Paola, Naples: 112 ft

All Ears

This 1835 watercolor by Viennese painter Rudolf von Alt depicts the Pantheon with the two bell towers, added in the 17th century on the orders of Pope Urban VIII. Nicknamed "asses' ears," they were finally removed in the late 1800s.

AKG/ALBUM

Lifelong Obsession

Throughout his life, painter Giovanni Paolo Pannini depicted the interior of the Pantheon many times, almost always from the same perspective: looking from the apse toward the main entrance. This 1732 painting, depicting the two columns that flank the apse, is the oldest. In the background, the door of the temple stands open as various people marvel at the beauty of the building. From the oculus, a figure surveys the interior.

CHRISTIE'S IMAGES/BRIDGEMAN IMAGES

GOODS AND GODS
Modern camel riders travel through the Nubra Valley, India, along the route that once linked [illegible] to Rome along the Silk Road. In the first century B.C. goods were not the only things to cross through these mountains; philosophies, technology, and religions were exchanged as well.
SCIAMMA/GETTY IMAGES

Connecting East and West

THE SILK ROAD

Linking China and the Roman world, this trade network in Central Asia emerged in the first century B.C. Along its pathways traveled not only luxuries and goods but also knowledge and beliefs that shaped and molded humanity.

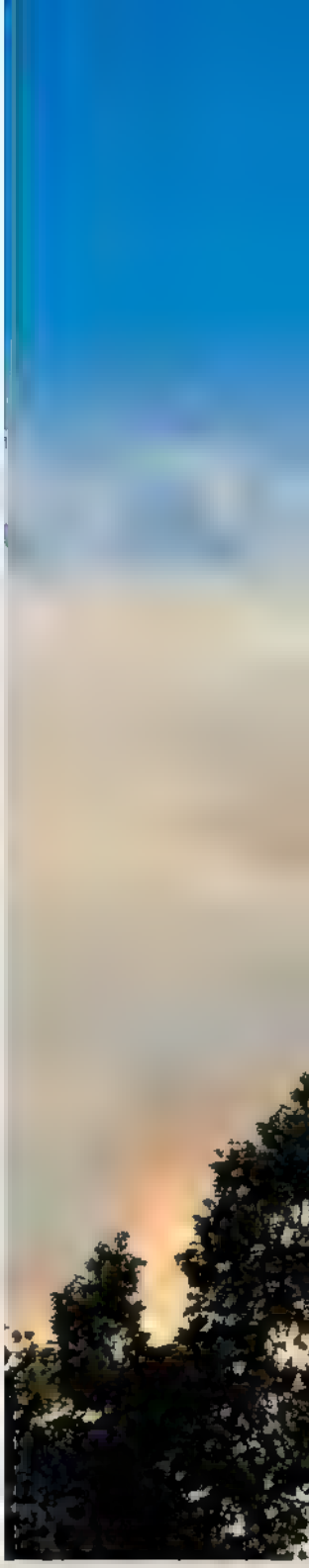
A SMOOTH SYSTEM
Silk marked all aspects of China's hierarchy. This scene was produced during the Qing dynasty (17th to early 20th centuries). It re-creates the second-century court of Emperor Yuan, in which courtesans wear colored silk robes according to their social status.
AKG/ALBUM

Soft, strong, and shimmering—silk was first cultivated in China, perhaps as early as the mid-third millennium B.C. The art of turning the cocoons of the silkworm moth *(Bombyx mori)* was, according to legend, discovered by the wife of the Yellow Emperor, a mythical forebear of the tribe that later founded China's first dynasty, the Xia, in circa 2070 B.C. While she was drinking tea in the shade of a mulberry bush, a cocoon fell into her cup. Instead of throwing it away, she examined it and discovered that pulling on a strand could completely unravel it. Traditionally, silk production was entrusted to Chinese women and carefully guarded as a state secret. Revealing the confidential methods of sericulture was punishable by death. Centuries later, it would be these silken threads that would weave together a vast trade network, linking the lands of China to Rome.

In the 19th century German geographer Ferdinand von Richthofen looked for a term to describe the trade routes that shuttled silks and other luxury goods between the Far East and the Mediterranean from the first century B.C. until the Middle Ages. It seemed appropriate to name it for the item most associated with Eastern opulence, and Richthofen's term, "Silk Road," has stuck ever since.

Beyond the Wall

The Chinese did not make an effort to sell silk outside of their country until circumstances forced them to do so. At the end of the third century B.C., Emperor Qin Shi Huang Di (r. 221–210 B.C.) began consolidating forts in the north, the first phase of what would eventually become the Great Wall. His aim was to halt the incursions of the nomadic Xiongnu tribes. Over time, the



ORIGINS OF THE SILK ROAD

138 B.C.
ZHANG QIAN rides west to try to form an alliance with the Yuezh to defend China. He fails in his mission, but discovers wild horses in the Fergana Valley, which he believes can be traded for silk.

102 B.C.
THE HAN DYNASTY now controls trading routes northwest of China to the Fergana Valley. Its customs point at Dunhuang ensures that silk cocoons are not smuggled out of China.

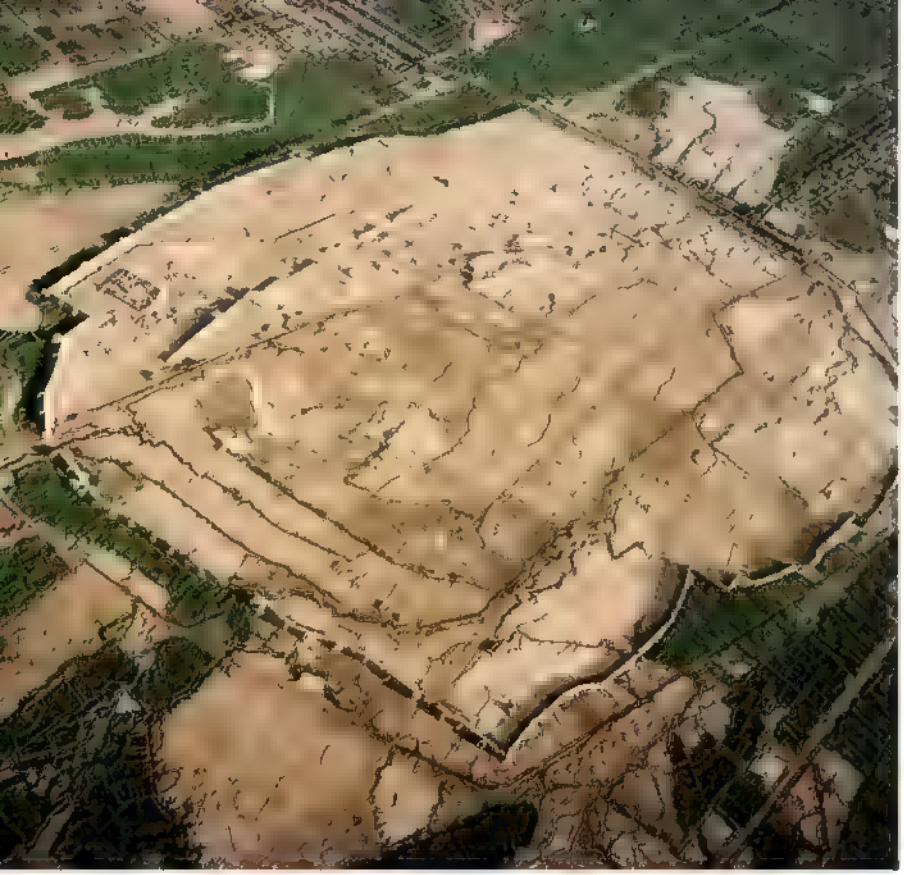
A.D. 550
AMID THE UPHEAVAL following the third-century collapse of the Han dynasty, Christian monks manage to sneak cocoons out of China to produce silk in Europe.

CAPITAL CITY
The Buddhist Great Wild Goose Pagoda was built in the mid-seventh century in the imperial capital Chang'an, the eastern starting point of the Silk Road. It was constructed at a time of renewed trade with the West under China's vibrant Tang dynasty.

FAST PHOTO/AGE FOTOSTOCK

FROM A.D. 618

RENEWED CONFIDENCE and unity under China's new Tang dynasty spurs demand for luxury goods, boosting two-way traffic along the Silk Road between China and Europe.



DESERT STOPOVER

Watered by the Tian Shan mountains, Gaochang, on the rim of the Taklimakan Desert, was one of a string of bustling oasis cities that offered a haven for travelers along the Silk Road.

GEORG GERSTER/AGE FOTOSTOCK

wall proved to be insufficient on its own; in 138 B.C. Han emperor Wudi tried another approach. He attempted an alliance with another Central Asian tribe, the Yuezhi, enemies of the Xiongnu.

Zhang Qian, a young officer of the emperor's palace guard, was appointed as the leader of the diplomatic mission. In order to reach the Yuezhi, he had to enter enemy territory to the northwest and was captured by Xiongnu forces. After a long imprisonment, he returned to China 13 years later, his mission to the Yuezhi a failure.

In this and other subsequent adventures, however, Zhang Qian learned a great deal about the mysterious lands to the west: India and the Parthian Empire, whose lands correspond to northeastern regions in Iran today. In the Fergana Valley, north of the Hindu Kush, he observed horses much larger than those in China. He recognized that these beasts would be valuable military additions to Chinese forces. While in Parthia, he also made contact with the remnants of the Hellenist culture established by Alexander the Great in Central Asia, marking the first major contact between China and Indo-European society. Most important of all, he identified a widespread desire for Chinese silk.

Having absorbed Zhang Qian's reports after his return, the Han dynasty saw the advantages of westward trade, especially the prospect of obtaining the superior Fergana horses. Officials knew they could trade silk for these horses. In time this trade would plug China into the lucrative markets of the West, including the booming Roman world.

The route did not arise out of a vacuum. In the fifth century B.C. the sprawling Persian Empire had already improved travel through western Asia, while Alexander the Great's eastward expansion helped lay the foundations of trans-Asian trade. Even so, Zhang Qian's remarkable adventures were important early steps in creating the Silk Road.

Realizing they could swap silk for horses, Chinese officials embraced westward trade.

"FLYING" FERGANA HORSE. BRONZE FIGURE, HAN DYNASTY, SECOND CENTURY

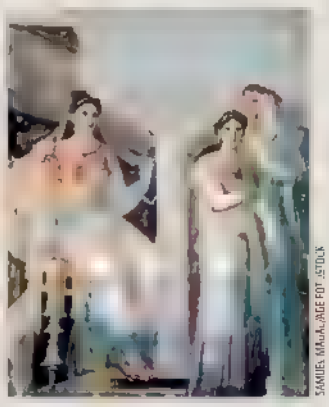
ERICH LESSING/ALBUM

BOUND BY SILKEN THREADS

The Silk Road was not a single road but a network of routes linking trade to and from India. The unifying expression "Silk Road" is attributed to the great German geographer Ferdinand von Richthofen, who used the term in German—*Seidenstraße*—on the caption of a map of Central Asia he published in 1876. A well traveled scholar—Mount Richthofen in Colorado is named for him—the geographer used the term specifically to the Han dynasty (that is, from the beginning of the first century B.C. to the third century A.D.). He also understood the term as specifically related to the transport of silk from east to west. In time, however, "Silk Road" became a catchall for the mesh of trade routes across Central Asia. It has served as a title for numerous histories, and as inspiration for explorers such as Marc Aurel Stein, who traveled part of the route in the early 1900s.

SILK: REVILED, BANNED, . . . AND LONGED FOR

IN ROME, it was synonymous with wealth but also with vanity. Several times in Roman history, laws were passed to regulate the trade, or use, of silk. The emperor Augustus considered that the fabric encouraged immoral behavior, while Tiberius prohibited men from wearing silk clothes. The first-century writer and moralist Seneca sternly criticized Roman matrons' taste for the exotic fabric in his book *De beneficiis:* "Silk dresses can barely deserve to be called dresses when they cover neither [a lady's] body nor their shame. When they wear them, they cannot swear with good conscience that they are not naked. They are imported at vast expense . . . in order that our matrons may show as much of their persons in public as they do to their lovers in private."



SAMUEL MAGAL/AGE FOTOSTOCK

WOMEN DRESSED IN SILK, ATTENDED TO BY A HAIRDRESSER. FRESCO FROM HERCULANEUM, ITALY. MUSEUM OF NAPLES

Through Snow and Sandstorms

The Chinese capital, Chang'an (Xi'an), was the eastern starting point of this trading route. Strictly speaking, the Silk Road was not a single highway but a network of roads that twisted and turned on the way from east to west. From Chang'an, for example, one branch went southwest to the mouth of the Ganges in India. Among the luxury products traveling west were jade, turtle shells, bird feathers, and, of course, silk. Traders also brought metals—silver, iron, lead, tin, and gold—and foodstuffs—saffron and other spices, tea, carrots, and pomegranates.

By 102 B.C. the Chinese controlled traffic along the Silk Road as far as the Fergana Valley. Although goods traveled thousands of miles in both directions, the merchants themselves probably only journeyed along short sections. When they reached the next city, they would sell their merchandise to the locals, who then would travel along the next segment and trade with the merchants there. The Dunhuang Oasis was the main Chinese customs post. Westbound traders had to wait several days to pay their exit duties while soldiers carefully searched their baggage to make sure no one was smuggling silkworms or cocoons out of the country.

From there, the westward journey split into three main routes. The two northern roads passed on either side of the Heavenly Mountains (Tian Shan), whose peaks soar to heights of 24,000 feet. The third road went south and passed through Khotan (near modern-day Hotan in China), famous for silken rugs. This route skirted the edge of the almost impassable Taklimakan Desert, where extreme temperatures and sandstorms claimed the lives of many travelers.

The northern and southern roads met again near Kashgar, on the border with modern-day China and Kyrgyzstan. The traders then crossed the Pamir Mountains along narrow snowy tracks, before descending into the Fergana Valley. Somewhere near here they rested in a place the second-century Egyptian geographer Ptolemy referred to only as the "Stone Tower."

Turtle shells, jade, feathers, and, of course, silk, were just a few of the luxury items traveling west.

CERAMIC TURTLE. FIGURINE FOUND IN A TOMB. TANG DYNASTY, SEVENTH TO TENTH CENTURIES

BRIDGEMAN/AC

SUSPENSION OF BELIEF
Caves carved by Buddhist monks can be found in several places along the Chinese section of the Silk Road. The fourth and fifth century Maijishan Grottoes, near Gansu, consist of 194 caves cut into the sheer cliff face.
TOP PHOTO GROUP/ADE FOTOSTOCK

HALFWAY HOUSE

Meaning "stone tower" in the Turkic language, some scholars identify the Chinese city of Taxkorgan as the place Ptolemy fixed as the halfway point along the Silk Road. The image shows the 14th-century ruins of the city's fortress, with the Pamir Mountains rising behind.

PANORAMA STOCK/AGE FOTOSTOCK

Believed by modern historians to be the city of Taxkorgan, Ptolemy considered it the midway point of the Silk Road. Here, as in other cities along the route, merchants from all over central Asia waited to trade. These included the Sogdians, whose lands centered on the trading city of Samarqand (Uzbekistan), and who became the most prominent of the Silk Road's middlemen between China and the West. Farther west still, the Parthians thronged the routes that passed through their lands, centered on areas of modern-day Iran, Iraq, and Turkmenistan, where the great trading city of Merv is located.

Parthian kings built caravansaries to accommodate the traders and their camels along the route to Ctesiphon (near Baghdad), their first-century B.C. capital. From here, they crossed the desert wastes of Syria via Palmyra. Having reached the Mediterranean, goods were shipped to Rome from ports such as Tyre and Antioch.

Rome itself had developed a love-hate relationship with silk. One of the earliest recorded observations occurred during a conflict with the Parthians, whose archers soundly defeated Roman troops in 53 B.C. at the Battle of Carrhae in modern-day Turkey. Before the battle, Romans made note of the Parthians' bold, beautiful spectacle that conveyed power and invincibility as well as finesse: colorful banners woven from Chinese silk. The Roman second-century historian Florus later described the moment when the Parthian generals "displayed all around [the Romans] their standards, fluttering with . . . silken pennons" before describing how the army was slaughtered and its Roman commander killed.

Ever since the shameful rout at Carrhae, silk both troubled and delighted the Romans. A century after the battle, silk was immensely popular across the Roman Empire. This weakness for a foreign luxury was bitterly criticized by Rome's stern moralists. In the first century Pliny the Elder wrote: "At least a hundred

The Parthians built caravansaries for the traders and camels crossing the Syrian desert via Palmyra.

CAMEL, STANDING UP. CERAMIC STATUETTE. TANG DYNASTY. SEVENTH TO TENTH CENTURIES

GRANGER COLLECTION/AGE FOTOSTOCK

GALLOPING WEALTH
A hunting scene on a seventh- to eighth-century mural from the Qianling Mausoleum near Xi'an. Brought into China along the Silk Road, horses became status symbols during the Tang dynasty.

SUPERSTOCK/AGE FOTOSTOCK

HEAVENLY HORSES

The heavenly horses arrive from the Western frontier,
Having traveled 10,000 li, they come with great virtue
With loyal spirit, they defeat foreign nations
And crossing the deserts, all barbarians succumb in their wake[1]

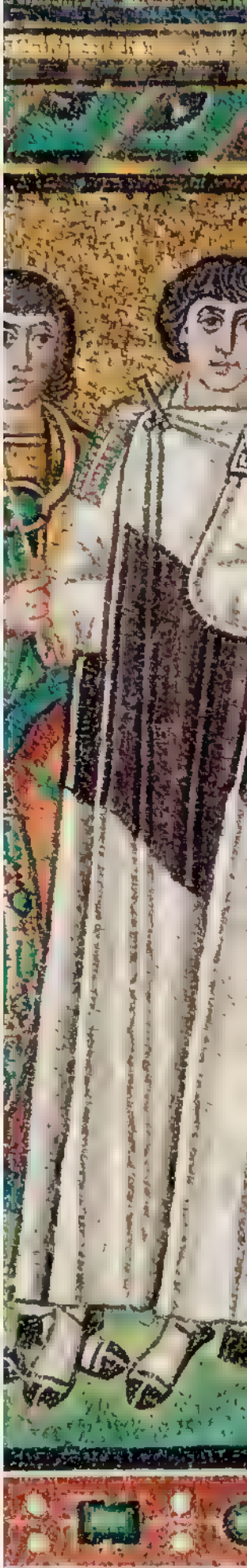
The explorer Zhang Qian had told Emperor Wudi that there was a special breed of horses of great stamina in the Fergana Valley, which would equip China with a formidable cavalry. Delighted, the emperor allowed the trading of silk with the inhabitants of the Fergana region, which led to what would become the Silk Road. The poem quoted left—from the first-century B.C. chronicle of China's history, the *Shiji*—marks the arrival of the first of these steeds. Later, during the Tang period, the horse became a status symbol, a kind of sports car of its day. The breed, however, no longer exists, and is preserved only in paintings and sculptures.

OPERATION SILK: MONKS ON A MISSION

THE CHINESE monopoly on silk production may well have been lost as early as the first century B.C., when sericultural know-how reached Korea. It took longer, however, to arrive in the West. The disruption to trade caused by the wars between Rome and the Sasanian Empire (successors to the Parthians) led the Byzantine emperor Justinian to set up his own silk-production center. He entrusted monks to bring back silkworm eggs from China along the Silk Road. Wrapping the eggs in dung to keep them warm, the monks smuggled them out inside one of their walking sticks. According to the historian Procopius: "They carried the eggs back to Byzantium and after the worms hatched, fed them with mulberry leaves and so managed to grow silk in Roman lands."

KHARBINE TAPABORIART ARCHIVE

SILKWORMS ON A MULBERRY BUSH. ILLUSTRATION PUBLISHED IN 1900



IMPERIAL FABRIC

Having failed to find alternative routes for acquiring Chinese silk more easily, Emperor Justinian (in the center) looked for ways to start silk production on his own territory. Mosaic from the Basilica of San Vitale, Ravenna, Italy

SCALA, FLORENCE

million sesterces flow out of our empire every year to India, China, and Arabia. That is how much luxury and women cost us!"

The Road that Changed the World

In A.D. 220 the Han dynasty collapsed, and China passed through a period of political upheaval. Over the coming centuries, the monopoly on silk that the Han had so carefully nurtured fell apart, and silk production started to spring up outside China. By the sixth century even the Romans had secured their own independent supply after the Roman emperor Justinian successfully smuggled silkworms into his empire.

Since the moment it left Chang'an, to its unpacking in the aristocratic surroundings of a Roman villa about a year later, a roll of silk would have passed through a dazzling array of cultures, languages, and climes. Even though silk production had spread to the western lands, the Silk Road continued to be a vibrant connection of cultures and trade. Not only products traveled along the Silk Road, but ideas too: convulsions in human thought and faith that reshaped the world. Buddhism, Christianity, and Islam would all travel along these paths and touch cultures along the way, shaping people's beliefs and philosophies over time. In the seventh century, after China returned to growth and prosperity under the Tang dynasty, the route was boosted by renewed Chinese demand for luxury goods from the West, including silver-making techniques, chairs, and ceramics. In part to protect this trade, the Tang embarked on a major expansion westward, even as the first Christian missionaries were moving east along the Silk Road. At the same time, Islam was rising in the Arabian Peninsula, and during the eighth century, it spread farther and farther east along the trade routes.

In A.D. 751 Muslim Abassid troops clashed with the Chinese at the Battle of Talas. This pivotal battle, which checked China's westward expansion, may have contributed to another, no less significant outcome: According to lore, several of the Chinese prisoners from the Battle of Talas taught their captors a craft, that disseminated through the Muslim lands into southern Europe. The skill these Chinese artisans passed on to their captors was nothing less than how to make paper, which would transform history and how it would be written.

A SPECIALIST IN EARLY CHRISTIANITY, HISTORIAN CARLES BUENACASA PÉREZ IS ASSOCIATE PROFESSOR OF HISTORY AT THE UNIVERSITY OF BARCELONA, SPAIN.

Learn more

In ***National Geographic***, Pulitzer Prize-winning journalist Paul Salopek's trek along the Silk Road reveals the importance of the ancient trade network today.

Read it at ***ngm.com/dec2017***

MAXIMIANVS

WOMEN'S WORK: MAKING SILK

PHOTOS: GRANGER COLLECTION/AGE FOTOSTOCK

The Hard Work Behind the Softest Fabric

The painting above was created by the 12th-century Emperor Huizong (Song dynasty), and is believed to be a copy of an eighth-century original by the Tang-era painter Zhang Xuan. Created from ink, color, and gold applied, appropriately, on a silk canvas, **"Court Ladies Preparing Newly Woven Silk"** portrays the importance of work that was carried out in almost ritualistic fashion by high-ranking women.

At just over 15 feet long, the painting—on display at the Museum of Fine Arts, Boston—is prized for the cleanness of its lines and the freshness and vibrancy of its colors

SILKEN FRAGMENT, PART OF A BANNER, SHOWING TWO BUDDHAS FACING ONE ANOTHER. 10TH CENTURY. BRITISH MUSEUM, LONDON

ERICH LESSING/ALBUM

1 POUNDING
Four ladies pound the silkworm cocoons with sticks in hot water to extract the fiber. Despite the physicality of their work, they are sumptuously dressed in silken attire

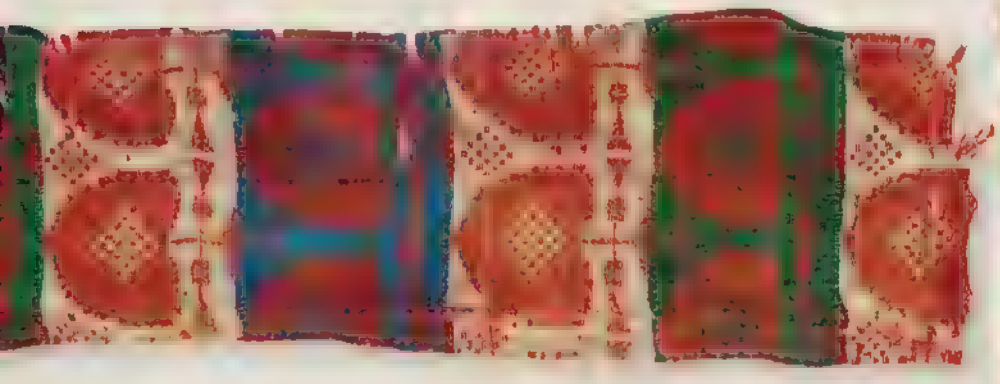
2 SPINNING
A woman winds the thread that had been pulled out from each cocoon in the previous process. She unrolls the filament from the end and rolls it onto a kind of bobbin. The lady next to her is sewing.

3 FANNING
A young servant, squatting on the ground, fans the embers to heat the charcoal. This will in turn heat the iron used to smooth out the rolls of silk.

4 IRONING
A girl plays beside four women who are engaged in unrolling the silk, holding it taut, and carefully ironing and smoothing out any wrinkles.

IN MEDIEVAL CHINA

The clothes and accessories the ladies are wearing in this scene bear all the hallmarks of fashionable dress during the **Tang dynasty** (618-907) when the original painting was created. Leaf motifs were common in this period, as were the jade, gold, silver or ivory combs the woman wear in their hair. Some are also wearing floral decorations, also made of precious materials and silk stoles of various patterns and colors around their shoulders.



▲ **PIECE** OF SILK FABRIC DECORATED WITH STYLIZED TREES, FIFTH CENTURY
BRIDGEMAN/AC

PIECE OF SILK BROCADE FABRIC DECORATED WITH BIRDS, EIGHTH CENTURY ▶
BRIDGEMAN/AC

THE FINAL RETREAT
French grenadiers defend the withdrawal of Napoleon's army in the closing moments of the Battle of Waterloo. Twentieth-century oil painting by Alexander Averyanov. State Borodino War and History Museum and Reserve, Moscow

NAPOLEON'S LAST STAND

THE BLOODY BATTLE OF WATERLOO

AFTER HIS BOLD RETURN FROM EXILE, AN OVERCONFIDENT NAPOLEON TOOK ONE LAST SHOT AT EMPIRE. ON A JUNE SUNDAY IN 1815, THE COMBINED POWERS OF EUROPE MET HIM ON A BELGIAN BATTLEFIELD THAT WOULD BECOME FOREVER REMEMBERED AS WATERLOO.

JEAN-NOËL BRÉGEON

Napoleon's Hundred Days

FEBRUARY 1815
Less than one year after his abdication and exile to Elba, Napoleon leaves the island intending to return to power.

MARCH 1, 1815
Napoleon lands at Cannes in southern France and begins marching on Paris. The troops sent to arrest him en route to Paris end up joining his side.

MARCH 19, 1815
King Louis XVIII of France abandons Paris and flees to Ghent. Napoleon and his forces will reach Paris the next day.

MARCH 25, 1815
Great Britain, Prussia, Austria, and Russia sign a new treaty declaring war on France to defeat the resurgent Napoleon.

JUNE 18, 1815
The Battle of Waterloo takes place in Belgium, where Napoleon's army is defeated by an international coalition led by the Duke of Wellington and General von Blücher.

JUNE 22, 1815
Napoleon abdicates for the second time. King Louis XVIII will return to power in early July in the second Bourbon restoration.

JULY 15, 1815
Napoleon surrenders to the British aboard the H.M.S. *Bellerophon*. He will be exiled to St. Helena in the southern Atlantic.

DOWN, BUT NOT OUT
Napoleon hears that Paris has fallen in March 1814. Painting by Paul Delaroche, 1845. Museum of Fine Arts, Leipzig

AKG/ALBUM

In the early 1800s Napoleon Bonaparte stormed across Europe, swallowing up territory for his French Empire and challenging the supremacy of Britain on the seas. From 1804 to 1814, the Napoleonic Wars raged, as Britain, Prussia, Austria, and Russia all fought to hold back the fiery emperor of France. In 1814 it looked as though they had succeeded. Napoleon had abdicated and was exiled to the island of Elba. In France the Bourbon king Louis XVIII had been restored to power.

Then, in late February 1815, Europe received a shock: The audacious Napoleon had left Elba and set sail for France. It is hard to overestimate the dismay and fear provoked by this news. Napoleon's banishment the year before had been achieved after years of momentous and costly battles on land and at sea. His escape, many feared, would restart French imperial expansion, and once more plunge Europe into war.

In spring 1815 British, Prussian, Austrian, and Russian forces rushed to regroup as Napoleon started mobilizing his army. The countdown had begun to a last epic showdown. This time,

NAPOLEON'S NEW EMPIRE
Inscribed with the names of Napoleon's generals, and built to commemorate his great victory against Austria and Russia at the Battle of Austerlitz (1805), the Arc de Triomphe in Paris was modeled on the Arch of Titus in Rome.

MARTIN MOLCAN/AGE FOTOSTOCK

Napoleon faced a coalition of nations led by one of his most skilled British adversaries, the Duke of Wellington. Despite being on opposite sides, both men had shaped, and been shaped by, the extraordinary events that had transformed Europe in the late 18th century.

The First Rise and Fall

Born on the island of Corsica in 1769, Napoleon Bonaparte possessed furious intelligence and relentless ambition. As a young soldier, he supported the radical ideals of the French Revolution and rose rapidly through the ranks of the French army. Proposing an aggressive approach by attacking Britain's territories en route to India, Napoleon led the invasion of Egypt in 1798. By 1799 France was at war with most of Europe. Returning to France, Napoleon took part in a coup against the government and then became first consul in February 1800. His forces defeated Austria, and in 1804 Napoleon crowned himself emperor of France.

THE EAGLE HAS LANDED

On being crowned emperor in 1804, Napoleon chose a Roman-style eagle as his emblem. Below, a gilt bronze eagle believed to have been commissioned by his then wife, Josephine.

DEA/ALBUM

The French Empire's renewed hopes to break British naval power were dashed at the Battle of Trafalgar in 1805. But even as Napoleon abandoned hope of invading Britain, his Grand Army went on to occupy swaths of Europe in what is now Germany and Poland. To the west, he enforced a trade blockade on Britain by invading Portugal, its commercial ally, and brought much of Spain under his control in the process.

It was on the Iberian Peninsula that the future Duke of Wellington, born Arthur Wellesley, first defeated Napoleon. The Irish-born commander had chalked up military successes in India before being sent to Portugal in 1809 where he helped guerrillas resist Napoleon's occupation. Despite initial setbacks, Wellesley managed with patience and skill to expel Napoleon from Portugal in 1811 and won decisive victories against the French in Spain in 1813, dealing a major blow to the emperor's plans for European domination.

The French Empire was weakening. Following the French Grand Army's ruinous attempt to invade Russia, allied

THE WORD OF CAMBRONNE

CLEAN OR DIRTY?

In spite of the defeat, the reputation of Napoleon's Imperial Guard was enhanced at Waterloo. The British noted with admiration how they withdrew calmly and with immense dignity. The actions of one member of the Imperial Guard at this point in the battle have passed into legend—although there are two very different versions as to what happened.

A major of the Imperial Guard, Pierre Cambronne was rewarded for his loyalty to Napoleon by being made a count just before Waterloo. One account says that the British taunted him to surrender, to which he is reported to have said: "The Guard dies, but the Guard never surrenders." That is the clean version. Another account says that when a saber-wielding Briton approached him, Cambronne said only one word: "*Merde!*—Shit!" Despite Cambronne's denial of both tales, Victor Hugo popularized the "dirty" version in his novel *Les Misérables* (1862). Ever since, when the French want to refer to *merde* euphemistically, they use the expression "the word of Cambronne."

PIERRE CAMBRONNE 19TH-CENTURY PORTRAIT. PRIVATE COLLECTION ALBUM

forces invaded France from all sides. In April 1814 Napoleon was forced to abdicate and accepted banishment to Elba, a few miles off the Italian coast, where he was not exactly a prisoner. He was granted sovereignty of the island, as well as an armed guard. A flow of intelligence from the mainland helped him plan for his daring return to the continent in early 1815.

The Comeback Trail

On March 20 Napoleon reached Paris with the support of the masses ringing in his ears. Despite his claims to want peace, Britain, Austria, Prussia, and Russia were wary. Together, they signed what amounted to a declaration of war.

Events moved swiftly, and the restored French emperor had little time to organize. With enemy armies massing on France's northern frontiers, he attempted, unsuccessfully, to put together a volunteer force to supplement the standing army at his disposal. But even in this diminished state, the French army was a fearful opponent. Its troops were experienced fighters, and its commander still inspired passionate loyalty.

CHARGE OF THE CUIRASSIERS
This 1874 oil painting by Félix Philippoteaux shows one of the last French cavalry charges against the British infantry. Victoria and Albert Museum, London
AKG/ALBUM

THE DUKE OF WELLINGTON
IN AN 1817 PORTRAIT BY T. LAWRENCE. WELLINGTON MUSEUM, LONDON
ALBUM

The allied forces consisted of British, German, Belgian, Dutch, and Prussian troops, who were divided up into various detachments on the border between France and present-day Germany. The British commander, the Duke of Wellington, patiently decided to wait for the enemy to attack rather than force their hand.

Napoleon himself, brimming with confidence, was planning for a decisive victory. Ignoring advice to postpone engagement, he left Paris on June 12, 1815, to join up with his army in Belgium—where Wellington's troops and Gebhard von Blücher's Prussian army also lay in wait. On June 14, he signed a proclamation: "The honor and happiness of our country are at stake and, in short, Frenchmen, the moment has arrived when we must conquer or die!"

A double battle took place on June 16 in Quatre-Bras and Ligny; both were French victories, although neither was a fatal blow to Napoleon's enemies. On June 17, heavy rains soaked the ground and the French soldiers. The wet fields and muddy roads became a swampy mess.

CANNON FODDER
The smashed cuirass (below) belonged to a French carabineer, Fauveau, who was killed by an artillery shell at Waterloo. Army Museum, Paris
RMN-GRAND PALAIS

A Military Quagmire

As dawn broke on June 18, Wellington and Napoleon organized their forces. Wellington set up his headquarters in Mont-Saint-Jean on the road from Brussels, not far from the town of Waterloo. He had deployed the bulk of his 68,000 troops along a two-and-a-half-mile-long ridge. Three farms—Papelotte, La Haye Sainte, and Hougoumont—stood along it. The British commander stuck to his defensive tactic, knowing he needed to wait for Blücher's detachments—some 50,000 men in total—to arrive. After the clash at Ligny, Blücher had withdrawn to Wavre, a few miles from Waterloo.

Napoleon's camp was in the village of Maison du Roi. Because French forces totaled roughly 72,000 men, Napoleon hoped to take advantage of the separation of the Prussians from the British and destroy Wellington's forces as soon as possible. The emperor was convinced that victory was within his grasp and that it would be quick and easy. "I tell you Wellington is a bad general," he said: "[T]he English are bad troops, and this affair is nothing

FIGHTING OVER FARMS

HOUGOUMONT

To the Bitter End

Hougoumont Farm was besieged by the French division commanded by Napoleon's youngest brother, Jérôme. Between 11 a.m. and 4 p.m., the French made three attempts to dislodge the defenders. The allies had a force of 2,000 men stationed in and around the site, including soldiers in the King's German Legion, Brunswick legionnaires, and the Coldstream Guards commanded by Colonel Macdonell. But they dug in, and withstood the wave of attacks. Early in the battle, about 40 French troops managed to break into the courtyard but the British cornered and massacred them. The French began shelling the farm and set fire to several rooms and the stables. Many injured soldiers, unable to move, perished in the flames.

■

There was also fierce fighting outside the farm. One British officer, Lt. Col. Henry Lane, recounted his memory of a charge by his regiment of hussars: "Our next attack . . . was [on] a square of French infantry, and our horses were within a few feet of the Square. We did not succeed in breaking it, and of course suffered most severely . . . [A]t the close of the battle, the two squadrons were dreadfully cut up."

■

The allies managed to hold Hougoumont, which proved to be crucial in winning the larger battle, but took a large toll. British officer Maj. W. E. Frye recounted seeing Hougoumont some days after the battle, on June 22: "Every tree [of the orchard] is pierced with bullets. The barns are all burned down, and in the courtyard, it is said, they have been obliged to burn upwards of a thousand carcases, an awful holocaust to the War-Demon."

Wellington's forces fortified two farms in the middle of the battlefield, Hougoumont and La Haye Sainte, as "breakwaters" to slow the French advance. Violent clashes for control of them erupted throughout the day, in which both the French and the allies lost thousands of men.

LEAD MUSKET SHOT
FOUND NEAR HOUGOUMONT
NATIONAL ARMY MUSEUM, LONDON
BRIDGEMAN/AC

LA HAYE SAINTE DURING THE BATTLE OF WATERLOO. PAINTING BY WILLIAM HEARTH, 1816. NATIONAL ARMY MUSEUM, LONDON
BRIDGEMAN/AC

LA HAYE SAINTE

A Pyrrhic Victory

La Haye Sainte Farm consisted of three buildings surrounded by high walls, flanked on one side by a vegetable garden and on the other by an orchard. The British had reinforced the gates and built barricades with felled trees and armed the defenders with accurate Baker rifles. After successive attacks commanded by General Drouet, Comte d'Erlon, failed, Marshall Ney personally led General Quiot's brigade and managed to breach the farm's last defenses.

Maj. George Baring, who fought in a British unit made up of expatriate Germans, was in charge of the farm's defense. He described the attack: "[They] nearly surrounded us, and, despising danger, fought with a degree of courage which I had never before witnessed in Frenchmen. Favoured by their advancing in masses, every bullet of ours hurt, and seldom were the effects limited to one assailant; this did not, however, prevent them from throwing themselves against the walls, and endeavouring to wrest the arms from the hands of my men, through the loop-holes . . . The most obstinate contest was carried on where the gate was wanting. . . . On this spot seventeen Frenchmen already lay dead, and their bodies served as a protection to those who pressed after them to the same spot."

❁

Baring finally decided to save the lives of the remaining defenders and gave the order to retreat. "Only he who has been in the same situation can judge how much these words cost me and with what feelings they were accompanied," he wrote in a report. It turned into a rout, however, and many stragglers were felled with bayonets or captured by the French.

KEY MOMENTS

SUNDAY SHOWDOWN

Following the inconclusive French victories at Quatre Bras and Ligny on June 16, Wellington retreats north (see smaller map, right) to block the road to Brussels at Waterloo. He is followed by Napoleon and his two commanders, Ney and d'Erlon. The Prussian commander Blücher retreats to Wavre, pursued by Grouchy. The scene is set for the Battle of Waterloo, on Sunday, June 18, 1815.

11-11:30 a.m. The French launch an attack on the British strongholds at Hougoumont Farm and La Haye Sainte.

2:30 p.m. Lord Uxbridge leads a powerful allied cavalry charge that manages to repulse d'Erlon's columns.

4:00 p.m. Bülow and Ziethen's Prussian regiments appear on Napoleon's right flank. Heavy French and Prussian fighting at Plancenoit and Papelotte.

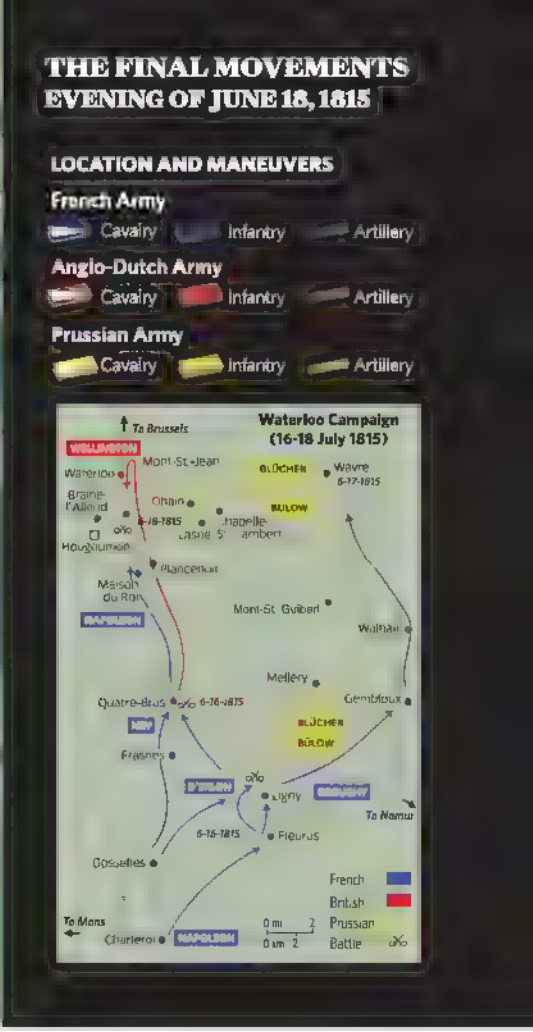
6:00 p.m. Ney leads an infantry, cavalry, and artillery attack and takes La Haye Sainte from the British.

7:00 p.m. Napoleon sends the Imperial Guard on a final offensive against Wellington's center, but it is repulsed.

8:15 p.m. Seeing that the Imperial Guard's onslaught has come to nothing, the French start to retreat as allied troops pursue.

more than eating breakfast." But the emperor's plan was thwarted by the muddy conditions and morning fog, which prevented an early start. The conditions forced him to delay his attack until late morning. Some historians believe that had it not rained, Napoleon would have defeated the allied army within a few hours, long before the Prussians arrived.

In the end, the battle began sometime after eleven in the morning. Always on the offensive, the French focused their forces on two key points on the front: The two farms that the allies had fortified, Hougoumont and La Haye Sainte. The battle to take these sites stretched on through the day, causing great losses among the French, who were able to launch successive attacks on the allies' infantry. Cavalry charges struck terror into the forward allied marksmen, while superior French artillery pounded the Anglo-Dutch formations throughout the day. Disciplined French infantry attacks punched more and more gaps in the allied lines, so that by the afternoon some of Wellington's officers, running out of munitions, feared the battle was lost.



MAPS EDSGIS.COM

None of the French attacks, however, achieved the aim of breaching the front. The allied infantry, in particular the British, showed determined resilience in facing the French onslaught. Some formations suffered unprecedented losses, such as the Inniskilling Regiment, which lost two-thirds of its men in 45 minutes.

Finally Facing His Waterloo

Even so, the strain was becoming intolerable. Wellington desperately awaited news of Blücher's arrival: "Night, or the Prussians, will save us," he said. It was at around 4 p.m. that Blücher's forces started to attack the French flank at the hamlets of Plancenoit and Papelotte. But the danger for Wellington was not over yet. The La Haye Sainte farmhouse fell to the French at around 6 p.m.

An hour later, the allied forces faced the terrifying charge from the Imperial Guard, the force Napoleon always reserved to decide battles. They, the emperor thought, would break the allies. But he had miscalculated. He had already sent several regiments of his Imperial Guard to fight the Prussians. They were sorely missed by their comrades during the final push. As they charged, allied gunfire ripped them apart. Stunned, the Imperial Guard faltered.

The French troops scattered in retreat. In his memoirs, Capt. Jean-Roch Coignet recalled: "Nothing could calm [the soldiers]; terror had taken control of them." At 8:15 p.m. Napoleon ordered a retreat. He realized a mortal blow had been struck and returned to Paris, where he abdicated in favor of his son on June 22.

The victory at Waterloo came at a heavy cost: Estimates vary, but historians place Wellington's casualties around 15,000 and Blücher's at about 8,000. Napoleon suffered roughly 25,000 casualties and 9,000 Frenchmen were captured. Wellington was overwhelmed by the loss of life: "I hope to God that I have fought my last battle." A month after the battle, Napoleon gave himself up to the British, who banished him to St. Helena, an island in the middle of the Atlantic. The Napoleonic Era was over for good. ■

HISTORIAN JEAN-NOËL BRÉGEON IS A SPECIALIST IN THE FRENCH REVOLUTIONARY, NAPOLEONIC, AND IMPERIAL PERIODS.

THE DAY AFTER: ASSESSING

HORRORS OF BATTLE AT THE CENTER OF THE FRENCH FORMATION, 1817 AQUATINT
BRIDGEMAN/ACI

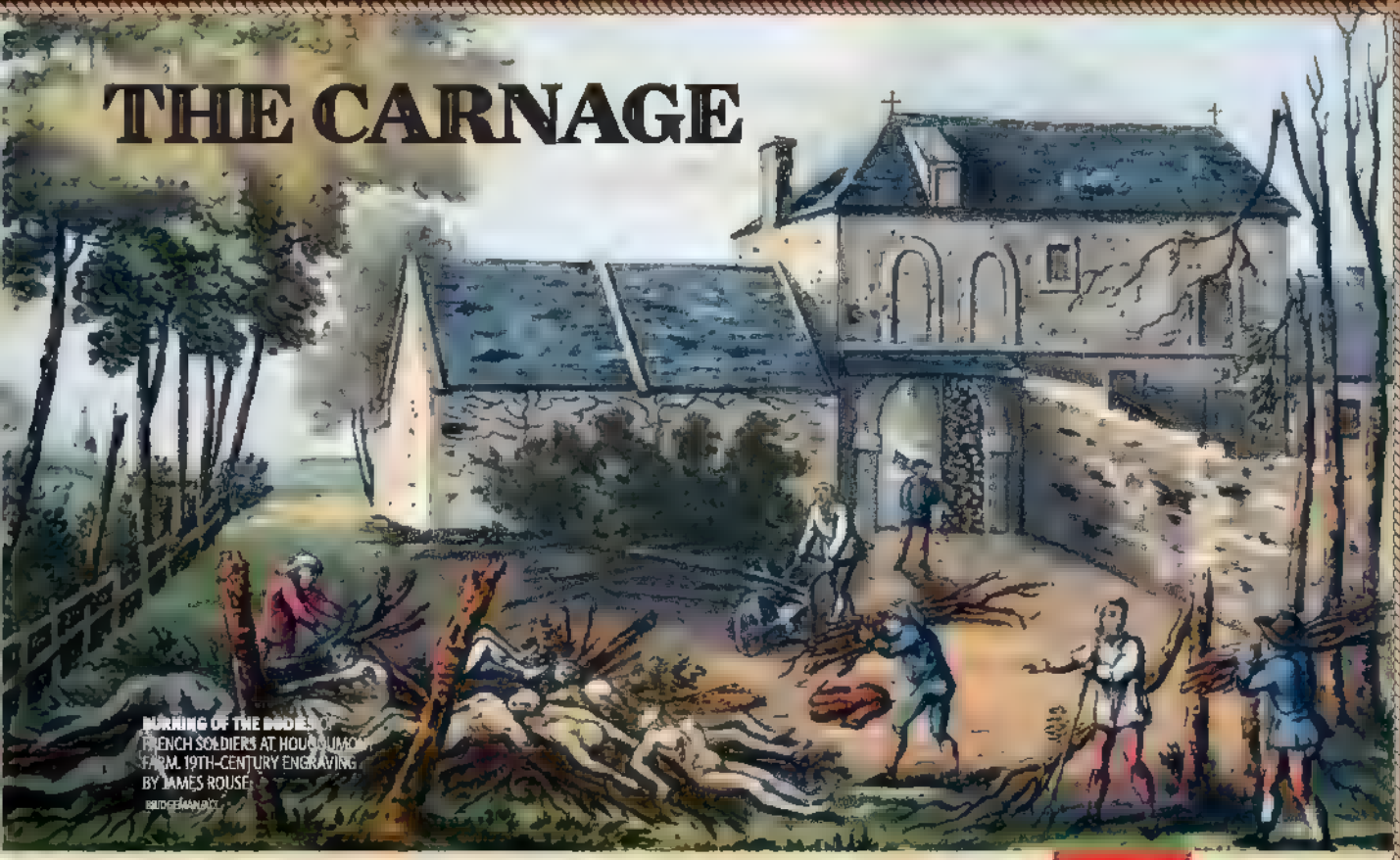
"At Waterloo, the *whole* field from left to right was a mass of dead bodies," wrote Maj. Harry Smith, who surveyed the battlefield the following day. Casualties from both sides totaled just under 50,000, of which around half were French. So many maimed, dead, or dying men overwhelmed doctors and the gravediggers alike.

SOLDIER WITH A HEAD WOUND IN A BRUSSELS HOSPITAL, 1815 WATERCOLOR BY CHARLES BELL
WELLCOME LIBRARY, LONDON

The screams of the wounded men left on the battlefield lasted through the night and into the next day. Some died of dehydration, others were crushed under retreating horses and wagons. Many, who had no chance of being healed, were finished off by scavengers prowling the battlefield to strip the corpses of whatever valuables they might have had.

Burying the Fallen The task of burying the thousands of bodies began the day after the battle and took local peasants more than 10 days to complete. They dug common graves about six feet deep in which they dumped 30 to 40 bodies. The dead were stripped naked as the peasants took everything from shoes to rags. Thousands of dead horses were burned on pyres; according to some accounts the same was done to a number of French soldiers.

THE CARNAGE



BURNING OF THE BODIES OF FRENCH SOLDIERS AT HOUGOUMONT FARM, 19TH-CENTURY ENGRAVING BY JAMES ROUSE.
BRIDGEMAN/AC

The Damage Done In his book *The Bloody Fields of Waterloo,* surgeon and historian Michael Crumplin calculates that most of the allied soldiers' injuries (62 percent) were caused by rifles and other small-caliber weapons. Sabers were responsible for about 18 percent of injuries. The remainder was caused by cannon fire.

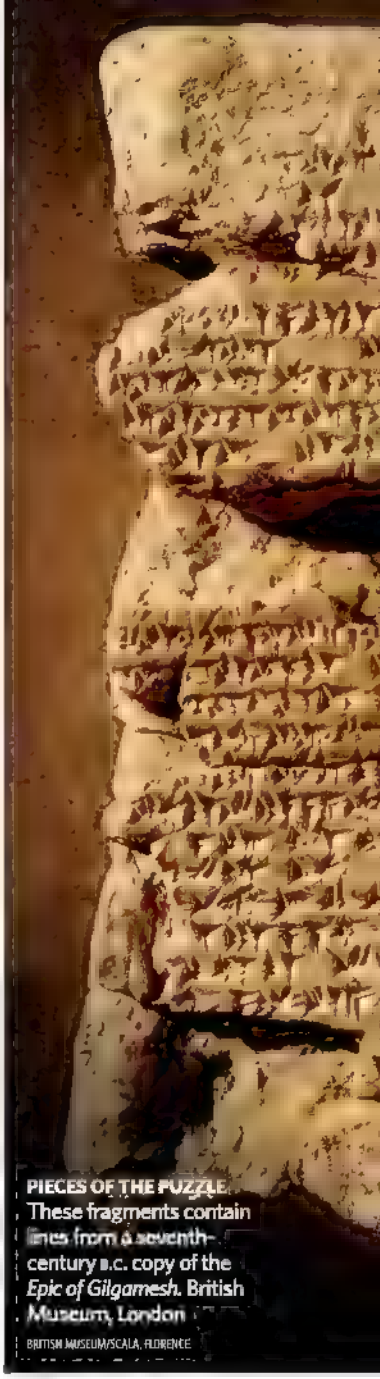
Enduring Amputation The injured were treated first by doctors and then taken to a provisional hospital in Brussels. Three-quarters of the wounded body parts were limbs. Due to the limited medical resources of the time and the risk of gangrene, the most usual remedy was amputation. According to Crumplin's study, some 2,000 operations of this kind were carried out after the battle—without anesthetic. The best patients could hope for was opium or laudanum. Many fainted from pain and shock; others are reported to have endured the grisly procedure with astonishing forbearance. One of the most famous cases was that of Lord Uxbridge and his leg. Stoic to the last it is said the patient barely uttered a word throughout the operation. His severed right leg was buried in the garden of a Waterloo resident, and became a kind of shrine, attracting visitors for decades afterward.

INSIGNIA OF THE LEGION OF HONOR TAKEN FROM A FRENCH OFFICER WHO DIED AT WATERLOO. NATIONAL ARMY MUSEUM, LONDON
BRIDGEMAN/AC

COMMON GRAVES IN FRONT OF LA BELLE ALLIANCE FARM. CARNAVALET MUSEUM, PARIS
BRIDGEMAN/AC

Opening the Floodgates: The *Epic of Gilgamesh*

Self-taught scholar George Smith labored for years at the British Museum before stumbling on a clay tablet from Nineveh one winter day in 1872. Its contents stunned his generation, upended the way the Bible is read, and reintroduced to the world an epic poem lost for millennia.



PIECES OF THE PUZZLE These fragments contain lines from a seventh-century B.C. copy of the *Epic of Gilgamesh*. British Museum, London

BRITISH MUSEUM/SCALA, FLORENCE

Recovered from Nineveh in the mid-19th century, shattered clay tablets covered in indecipherable writing held one of the world's greatest treasures. Locked within the characters lay the *Epic of Gilgamesh*—now considered by many to be the world's oldest epic poem, but hidden to scholars at that time. The tale of the demigod Gilgamesh could have been lost, except for the unrelenting curiosity of an unlikely scholar, George Smith.

Climbing the social ladder in Victorian England was difficult. For many, the prospect of a career at the prestigious British Museum was unthinkable, but George Smith overcame the odds. Born in 1840 to a modest London family, George Smith

not only became an expert in the cuneiform script of ancient Mesopotamia, but also made a discovery that turned contemporary notions about ancient history upside down.

Akkadian Autodidact

At age 14 Smith left formal schooling and became an apprentice in a publishing house that specialized in intricate engravings for banknotes. The work required close attention to visual details and patterns, a skill Smith picked up on the job that would serve him well later.

His workplace was fortuitously located on Fleet Street—close to the British Museum in the neighborhood of Bloomsbury. In 1860 Smith began spending his lunch breaks there to feed his growing hunger for the study of Mesopotamia. Of particular interest were the discoveries that Austen Henry Layard and other archaeologists had recently made at the site of Nineveh, near Mosul in modern-day Iraq. Smith spent hours at the museum studying the clay tablets and teaching himself to decipher them.

The tablets were in Akkadian, an ancient language written in cuneiform script. Its characters are formed from strokes in the form of wedges, the Latin word for which—*cuneo*—is the root of the term "cuneiform." To decipher requires dedication and patience. Over time, the scholars working in the

ENGRAVING OF GEORGE SMITH

BRIDGEMAN/ACI

1861
The British Museum hires 21-year-old George Smith to organize and decipher its collection of cuneiform clay tablets.

1872
Smith stumbles on a tablet with references to a great flood that long predates the Bible. He realizes it is part of an ancient, lost work.

1873
The *Daily Telegraph* newspaper finances Smith's expedition to Nineveh, where he discovers missing fragments of the Flood story.

1876
During his third trip to the Middle East, Smith falls ill with dysentery and dies in Aleppo at age 36.

TAKING TABLETS

THE GREAT LIBRARY of the seventh-century B.C. Assyrian king Ashurbanipal was unearthed in Nineveh in the 1850s, and thousands of tablets found there were transferred to the British Museum. Among these was the Flood Tablet, deciphered by George Smith in 1872, which alerted him to the existence of the ancient *Epic of Gilgamesh*.

antiquities department realized how well Smith could interpret it.

They informed Sir Henry Rawlinson, the foremost cuneiform scholar of the time, of their talented lunchtime visitor. Rawlinson, who had worked with Layard at Nineveh, met Smith and was impressed by his abilities. Smith proved particularly adept at spotting which fragment fitted where when faced with a table strewn with shattered clay tablets.

In 1861 Rawlinson convinced the museum to hire Smith, initially on a part-time basis, to organize the vast number of tablets in its collection. Numbering in the thousands, many originated from Nineveh's library, built by the Assyrian king Ashurbanipal in the seventh century B.C. Created when the Neo-Assyrian Empire stretched from Egypt to Turkey, the tablets were discovered in the 1850s by Hormuzd Rassam, a protégé of Layard. As experts in Akkadian writing were rare, most of the artifacts were simply left in storage at the museum. Over the next decade, Smith pored over them, perfecting his understanding of ancient languages, and soon became an expert.

The Naked Truth

Long days working with the ancient puzzle were relieved by moments of revelation. In his first decade working at the museum, Smith managed to establish dates for events in the history of the Israelites, helping to straighten out parts of the biblical chronology. Smith hoped to travel to the Middle East to seek out more tablets, but the museum

GATE OF GLORY
Rebuilt in the 20th century, the Nergal Gate was originally built in Nineveh in the seventh century B.C. Other monuments erected at the height of the city's power include the Library of Ashurbanipal, where the *Gilgamesh* tablets were stored

JANE SWEENEY/GETTY IMAGES

DAGLI ORTI/ALBUM IMAGES

GILGAMESH STATUE FOUND IN IRAQ, EIGHTH CENTURY B.C. LOUVRE, PARIS

wanted him to stay in London and translate the tablets already in their collection.

An Epic Flood

Smith's great hope was that his work on the broken tablets might reveal links to biblical accounts. His big breakthrough came after a decade of working at the museum. In November 1872 a fragment from Nineveh caught his attention. To a layperson, this piece (now known as tablet K.3375) does not look much different from all the other cracked tablets. But intriguing words astonished Smith and reminded him of something. Much of the lettering, however, was obscured by a layer of grime. Smith, an anxious man, had to wait for several days, his nerves strung like piano wires, before it could be cleaned.

When the restored tablet was placed before him, he deciphered the characters and confirmed his hunch—that they were part of a story about a great flood, with many of the key elements similar to the Noah story in the biblical Book of Genesis:

> On looking down the third column, my eye caught the statement that the ship rested on the mountains of Nizir [identified by some scholars as a real mountain in northern Iraq], followed by the account of the sending forth of the dove, and its finding no resting-place and returning. I saw at once that I had here discovered a portion at least of the Chaldean account of the Deluge . . .

Overwhelmed with emotion at what he had just discovered, Smith began to run around the room in a state of ecstasy, shouting and whooping. One account says that when his colleagues turned around to see what was happening,

Overwhelmed with emotion at what he had just discovered, Smith began to run around the room in a state of ecstasy.

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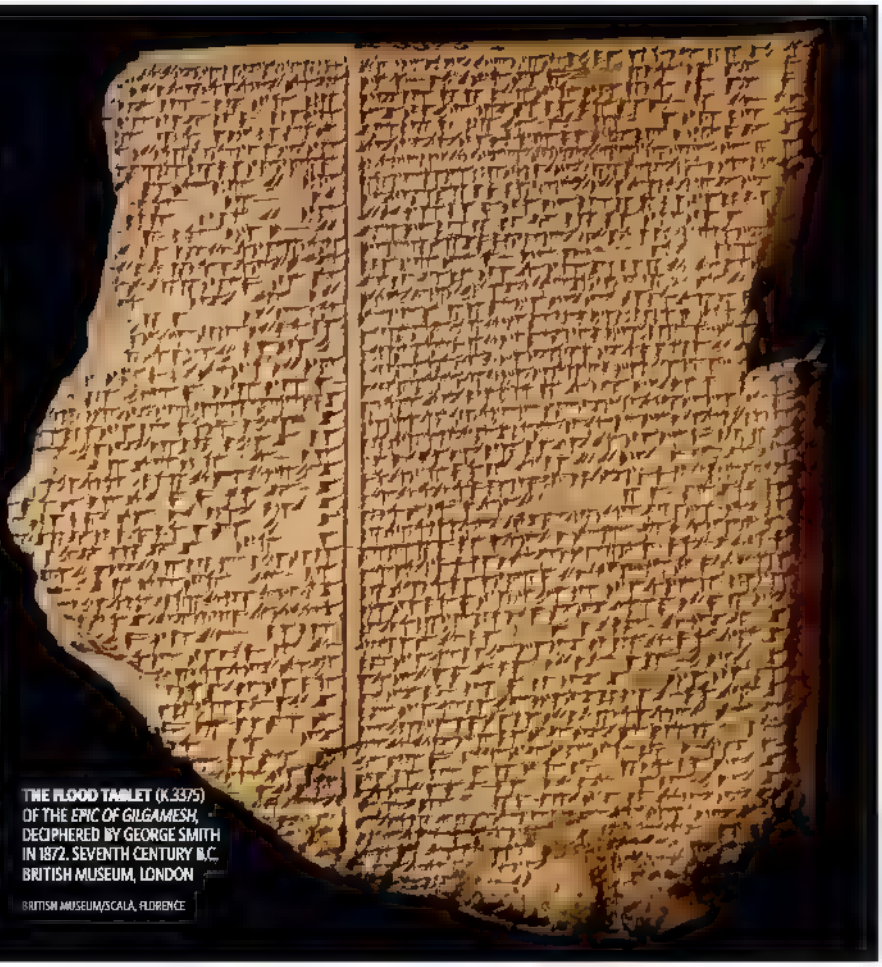
In the Beginning . . .

COMPOSED IN the second millennium B.C., the *Epic of Gilgamesh* recounts the futile quest by its eponymous hero to find immortality. Along the way, he encounters gods and monsters, and hears an account of a flood strikingly similar to that of the later story told in the Bible: *"I loaded into her [the boat] all that I had of gold and of living things, my family, my kin, the beast of the field . . . For six days and six nights . . . tempest and flood raged like warring hosts. When the seventh day dawned the storm from the south subsided. . . . I looked at the face of the world and there was silence, all mankind was turned to clay . . . but fourteen leagues distant there appeared a mountain, and there the boat grounded; on the mountain of Nizir the boat held fast."* (English version by N. K. Sandars)



THE FLOOD TABLET (K.3375) OF THE *EPIC OF GILGAMESH*, DECIPHERED BY GEORGE SMITH IN 1872. SEVENTH CENTURY B.C. BRITISH MUSEUM, LONDON

BRITISH MUSEUM/SCALA, FLORENCE

he stripped off his clothes with joy.

Smith's work revealed that Mesopotamian writings included an account of a great flood similar to the one described in the Book of Genesis. However, the tablets long predated the Bible, placing the flood story further back in history than originally thought.

Smith's discovery caused a sensation, not just for academics but also for the general public. In return for exclusivity, the London *Daily Telegraph* newspaper offered to fund an excavation led by George Smith in the Middle East. He would search for the missing pieces that would complete the story begun by his initial translations.

Smith's archaeological career proceeded rapidly; only days into his excavation at Nineveh he stumbled on missing lines from the account of the flood. Later that year, the discovery of other fragments enabled Smith to start filling in the blanks.

As Smith amassed all these pieces, a poem began to take shape. Now known as the *Epic of Gilgamesh*, this work was totally new to scholars. Believed to have been composed around 1800 B.C., it is one of the world's oldest great literary works. It tells the story of the demigod Gilgamesh who, among other adventures, embarks on a quest for immortality, during which he hears the story of a great flood that wiped out humanity. In the 1870s Smith published his translations of the work in several books—most notably in *The Chaldean Account of Genesis*.

Dreams Cut Short

Smith's career was short-lived. Despite the desire to travel to ancient sites in the Middle East, Smith was not physically equipped to cope with the climate. In the course of his excavations, he suffered constant illness, most likely caused by the searing heat.

In August 1876, during his third trip to the region, Smith fell ill with dysentery while in Syria. His assistant prepared him a mule-drawn litter to carry him to Aleppo, but the medical help he so desperately needed came too late. The man whose quiet scholarship had convulsed Assyriology and biblical studies, and whose discoveries would inspire the great archaeological digs of the next century, died in the Syrian city at just age 36.

—Francisco del Río Sánchez

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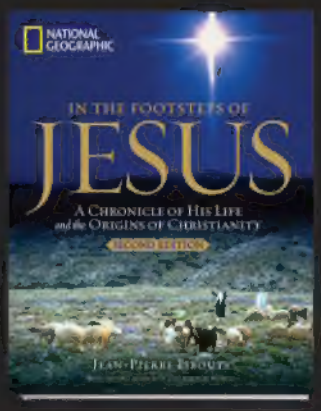
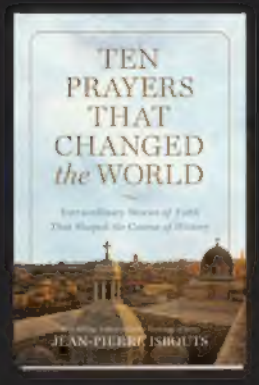
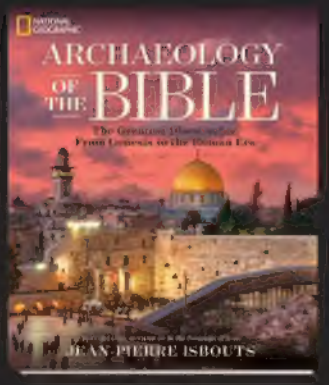
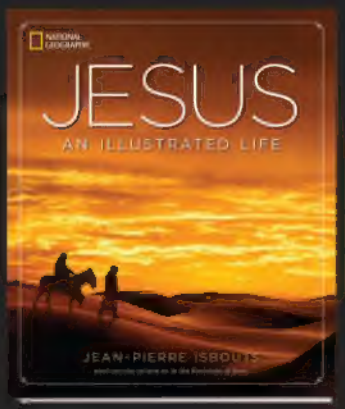
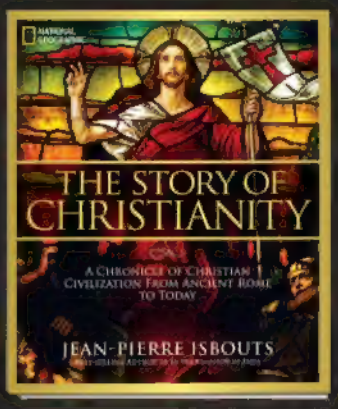
Best-selling author, award-winning filmmaker, and renowned humanities scholar Dr. Jean-Pierre Isbouts presents a library of work on biblical history, archaeology, and religion.

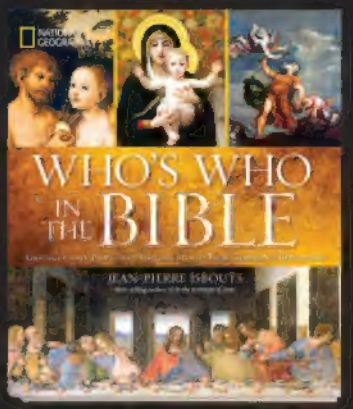


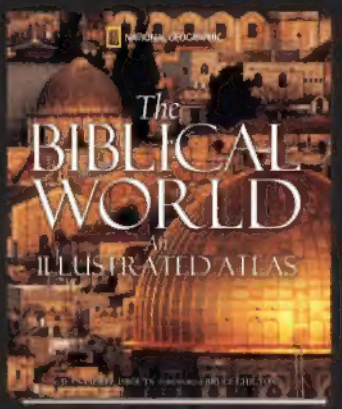












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Next Issue

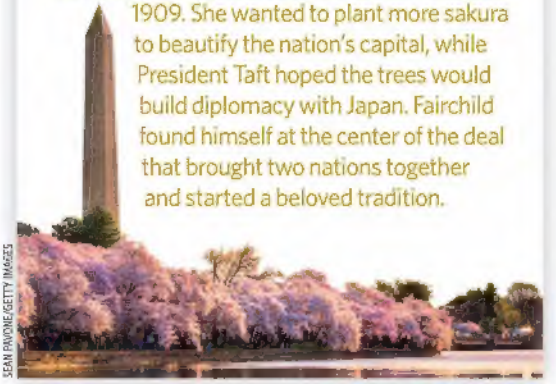
HOWARD CARTER (LEFT) EXAMINES THE GOLDEN SARCOPHAGUS OF TUTANKHAMUN IN 1922.
APIC/GETTY IMAGES

IN SEARCH OF TUT'S TOMB

BY 1922 THE PATRON of archaeologist Howard Carter, Lord Carnarvon, was ready to call off the search for a missing young pharaoh of Egypt's 18th dynasty, Tutankhamun. Carter secured one last try and began digging in the Valley of the Kings. On November 5, 1922, he found a tomb's undisturbed entryway bearing Tut's seals. He sent for Carnarvon, who arrived three weeks later. When Carter first peered inside the tomb, Carnarvon asked if he could see anything. "Yes," he said. "Wonderful things!" From that moment, Tut's tomb and its treasures captured the world's fascination, and never let go.

DAVID FAIRCHILD, BRINGER OF THE CHERRY BLOSSOMS

A FOOD HUNTER for the United States, David Fairchild searched the world for exotic plants. While visiting Japan in 1902, he was charmed by its pink cherry trees, called *sakura*. He imported 125 for his home in Maryland where they caught the eye of First Lady Helen Taft in 1909. She wanted to plant more sakura to beautify the nation's capital, while President Taft hoped the trees would build diplomacy with Japan. Fairchild found himself at the center of the deal that brought two nations together and started a beloved tradition.



SEAN PAVONE/GETTY IMAGES

A Place Called Eden

The lush lands of the Fertile Crescent provided the inspiration for the Garden of Eden, a paradise found in many traditions—from Mesopotamian tales from the third millennium B.C. to the Old Testament. Beautiful and bountiful, Eden represented perfection to the people at the dawn of human civilization.

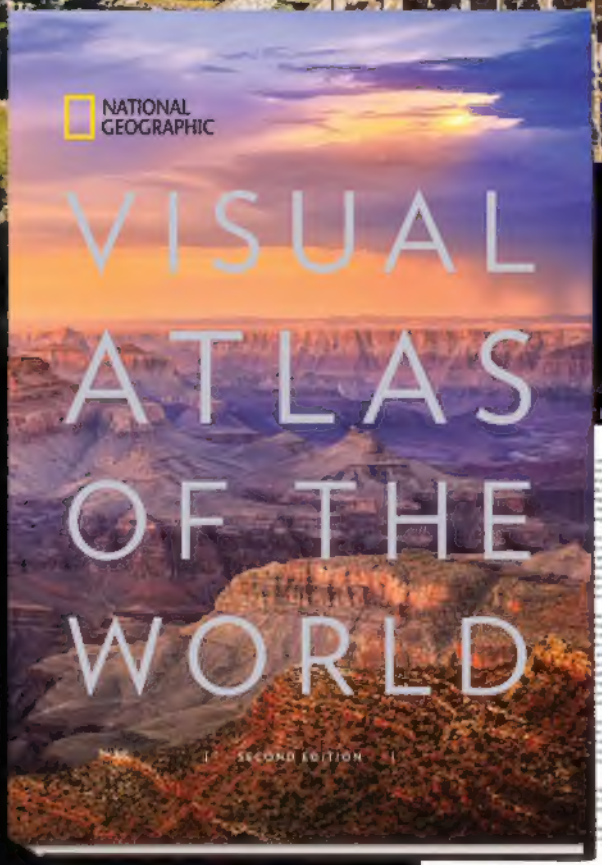
Herodotus: The Father of History

In 440 B.C. the Greek scholar Herodotus wrote the world's first grand narrative of history, an account of the Greco-Persian wars, and became the "father of history." From his colorful (and, ironically, sometimes unsubstantiated) work, the formal task of separating fact from fiction was born.

Politics, Propaganda, and Pompeii

In the months before Mount Vesuvius erupted in A.D. 79, election fever was sweeping the Roman city of Pompeii. Pompeians talked up their candidates and trashed their rivals through graffiti. Their threats and boasts would soon be buried under ash, preserving the campaigns forever.

A SHOWCASE OF THE **WORLD'S GREATEST TREASURES**



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